

Service Manual

Open Deck
RS-1700

Vol. 1

"Isolated Loop" Quartz-Locked
Direct-Drive Three-Motor Auto-
Reverse Open-Reel Tape Deck

Information:

The Service Manual for model RS-1700
is in 2 parts: Vol. 1 and Vol. 2.

Vol. 1 does not include measurements
and adjustments.

Refer to Vol. 2 for these items.



RS-1500U MECHANISM SERIES

Specifications (Catalog specifications for sales)

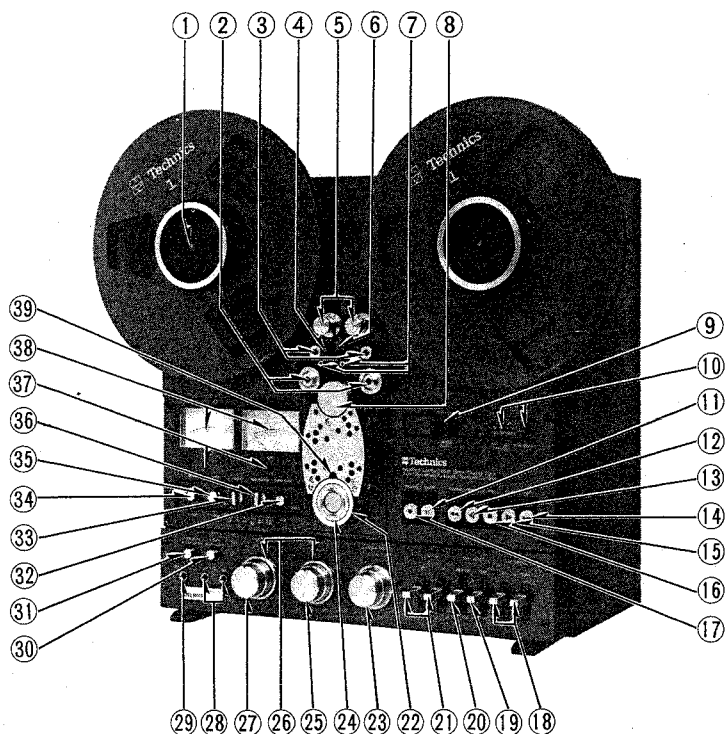
Operation:	Automatic reverse	Auto-stop sensing:	Photoelectric, Tension roller switches or Take-up reel table servo control system
Track system:	4-track 2-channel recording, playback, erasure on both way	Recording bias:	120 kHz
Heads:	6 heads system	Bias level:	BIAS selector at "1" 90% at "2" 100% at "3" 110%
Motors:	2-record/erasure combination head and 2-playback head	Equalization:	NAB standard position "2" of "EQ" and "BIAS" selector set for Scotch #207 tape
Capstan:	3 direct-drive motors system	Recording level calibration:	Referenced to 185 nWb/m
	Quartz control phase-locked DC brushless servo direct-drive motor	Inputs:	
Reel table:	2-tape tension controlled DC brushless direct-drive motor	MIC;	Unbalanced phone type jack sensitivity 0.25 mV (−72 dB), input impedance 4.7 K Ω (at 0 VU, Mic. level control at maximum position) 2.5 mV (−52 dB)/4.7 K Ω with 20 dB Mic.
Reel size:	13 cm to 26.5 cm (5" to 10-1/2") outside diameter	LINE;	Unbalanced phono type jack sensitivity 60 mV (−24 dB), input impedance 150 K Ω overload margin = infinity (line input connected to LINE IN level control before pass through the amplifier)
Tape speed:	38 cm/s, 19 cm/s and 9.5 cm/s (15 ips, 7-1/2 ips and 3-3/4 ips) (recording and playback)	THROUGH OUT;	Same as LINE IN (connected in parallel to LINE IN)
Wow and flutter:	0.018% (WRMS), $\pm 0.035\%$ (Peak DIN)	Outputs:	
	0.03% (WRMS), $\pm 0.06\%$ (Peak DIN)	LINE;	2-pair of unbalanced phone type jack output level 0.55 V at 0 VU (output level control at "8")
	0.06% (WRMS), $\pm 0.12\%$ (Peak DIN)		0.775 V or more at output level control maximum output impedance less than 3 K Ω load impedance 22 K Ω over
Speed deviation:	$\pm 0.1\%$ at 38 cm/s (15 ips)	HEADPHONE;	Stereo phone type jack output level 80 mV at 0.55 V line output load impedance 8 Ω
Speed fluctuation:	0.05% at 38 cm/s (15 ips)	Power requirements:	AC 110/125/220/240 V, 50/60 Hz
Frequency response:			DC 24 V, 4.9 A peak (with optional battery adaptor RP-086)
38 cm/s (15 ips);	30~30,000 Hz ± 3 dB (rec. level = −10 dB from 0 VU)	Power consumption:	160 W
19 cm/s (7-1/2 ips);	20~25,000 Hz ± 3 dB (rec. level = −20 dB from 0 VU)	Weight:	25.7 kg, (56 lbs 9 oz)
9.5 cm/s (3-3/4 ips);	20~15,000 Hz ± 3 dB (rec. level = −20 dB from 0 VU)	Dimensions (W \times H \times D):	45.6 cm \times 44.6 cm \times 25.8 cm (18" \times 17-1/2" \times 10-1/8")
Signal-to-noise ratio:	Weighted (ASA-A curve) 1 kHz		
Recording level:	(3% THD) (185 nWb/m + 6 dB)		
38 cm/s (15 ips);	68 dB 62 dB		
19 cm/s (7-1/2 ips);	68 dB 62 dB		
9.5 cm/s (3-3/4 ips);	67 dB 60 dB		
Distortion (THD):	Measured via tape at 400 Hz (at any speed)		
	Less than 0.8% (0 VU)		
	Less than 2.0% (185 nWb/m + 6 dB)		
Channel separation:	Better than 50 dB		
Erasing ratio:	Better than 65 dB (rec. level = +10 dB at 1 kHz)		
Pitch control:	$\pm 6\%$ (recording and playback)		
Time counter accuracy:	$\pm 1\%$ at 38 cm/s (15 ips)		
Fast winding time:	150 sec. for 762 m (1.5 mil, 2500 feet) tape		
Auto-reverse sensing:	Photoelectric		

Specifications based on use of Technics RT-10B218 (Scotch #207) tape.
Specifications are subject to change without notice.

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS AND COMPONENTS



- ① Reel clamber
- ② Double pinch rollers
- ③ Tape marker
- ④ Light sensing system: Light-emitting diode
- ⑤ Tension rollers
- ⑥ Light sensing system: Photo-transistor
- ⑦ Guide pins
- ⑧ Capstan
- ⑨ Cue lever/DC power switch
- ⑩ Time counter, reset button
- ⑪ Pause button
- ⑫ Rewind button
- ⑬ Reverse button
- ⑭ Fast-forward button
- ⑮ Forward button
- ⑯ Stop button
- ⑰ Record button
- ⑱ Record mode switches
- ⑲ Bias selector
- ⑳ Equalization selector
- ㉑ Monitor switches
- ㉒ Reversing roller
- ㉓ Output level controls
- ㉔ Edit dial
- ㉕ Line-input level controls
- ㉖ Preset markers
- ㉗ Microphone level controls
- ㉘ Microphone jack
- ㉙ Headphones jack
- ㉚ Microphone attenuator switch
- ㉛ Meter scale selector
- ㉜ Timer start switch
- ㉝ Tape speed selector
- ㉞ Power switch
- ㉟ Pitch control
- ㊱ Reverse selector
- ㊲ Level meter zero-point adjustment screws
- ㊳ Level meters
- ㊴ Stroboscope lamp
- ㊵ Voltage selector
- ㊶ Remote-control connector
- ㊷ Power cord holder
- ㊸ Battery selector
- ㊹ DC IN connector
- ㊺ Power cord
- ㊻ Ground terminal
- ㊼ Line input jacks
- ㊽ "Throughout" jacks
- ㊾ Line output jacks

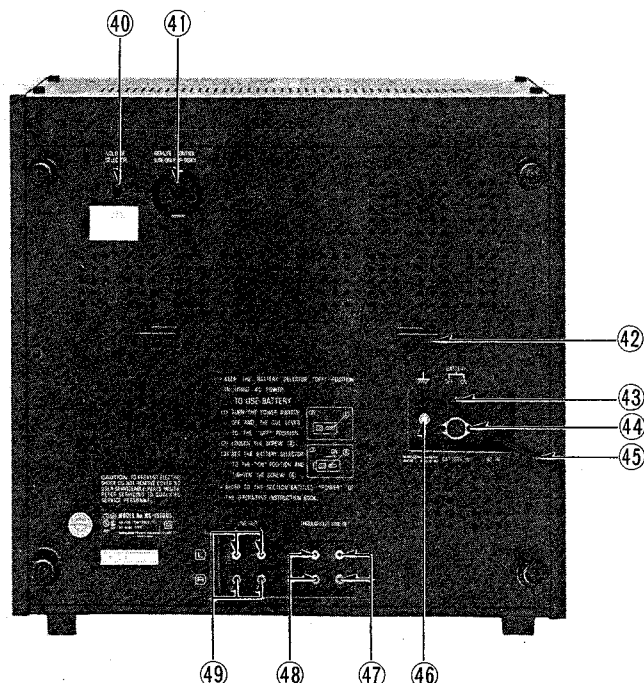


Fig. 1

www.new-technics.com
Technics 1

AMPLIFIER SECTION BLOCK DIAGRAM

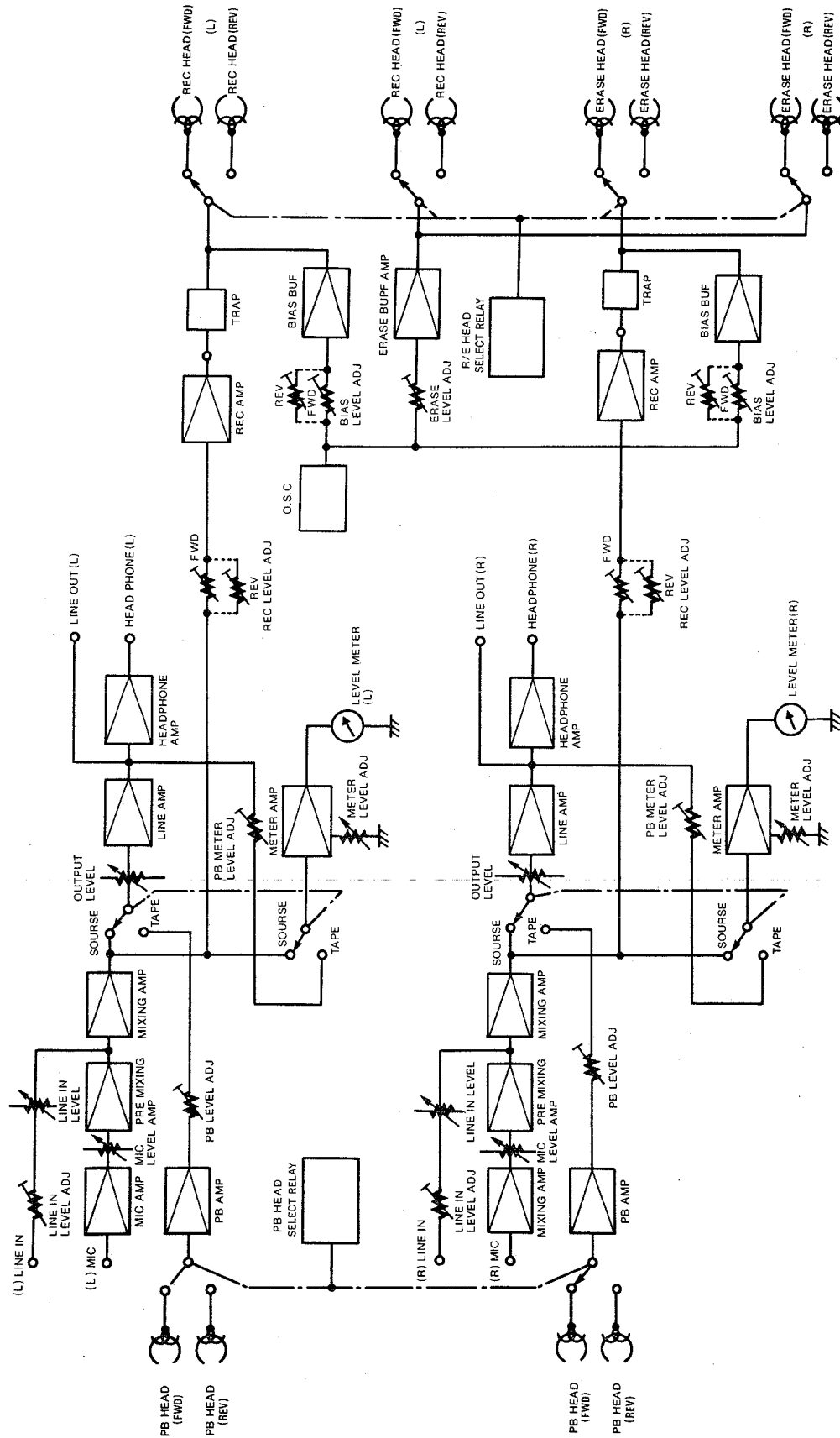


Fig. 2

MAIN CONTROL CIRCUIT SECTION

Equivalent Circuit

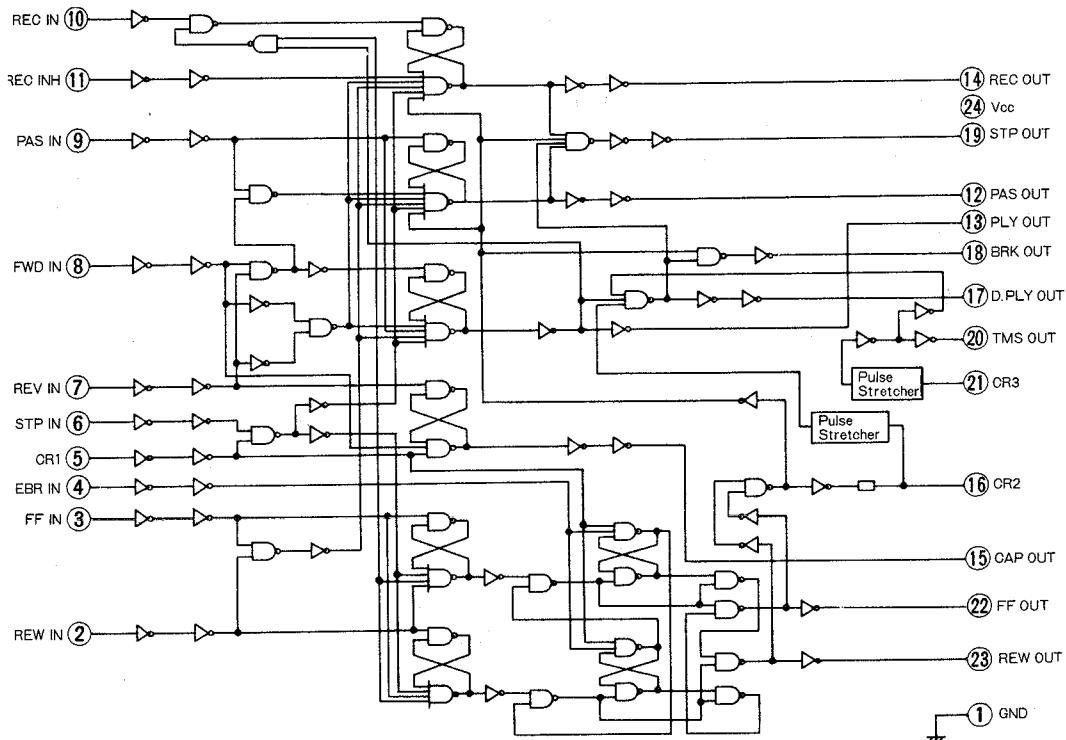
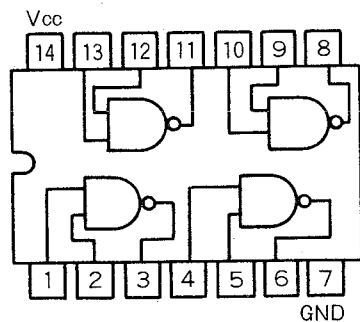


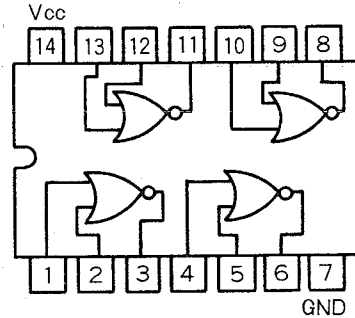
Fig. 3

Internal Circuit of ICs.

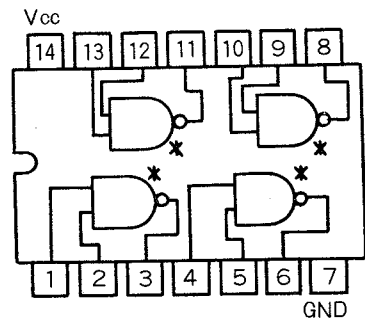
M53200P Quadruple 2-Input Positive Nand gate



M53202P Quadruple 2-Input Positive Nor gate



M53203P Quadruple 2-Input Positive Nand gate



M53204P Hex Inverter

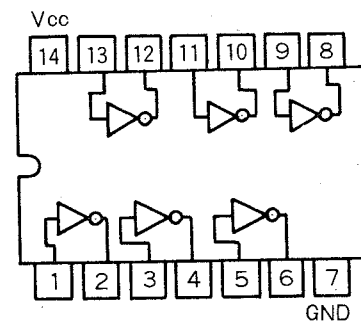


Fig. 4

DISASSEMBLY INSTRUCTIONS

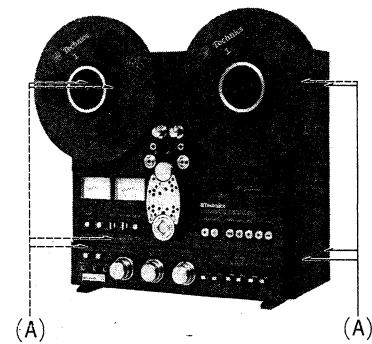


Fig. 5

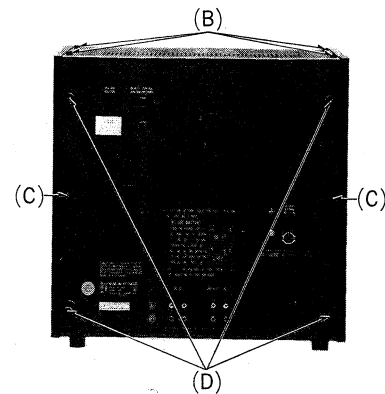


Fig. 6

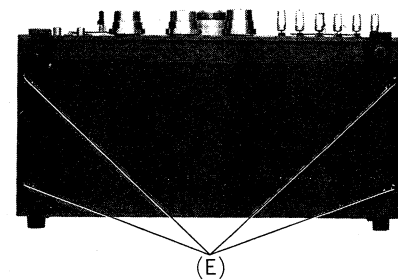


Fig. 7

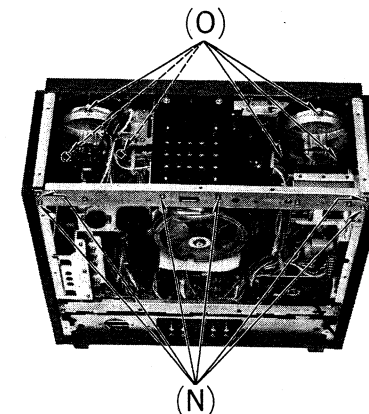


Fig. 14

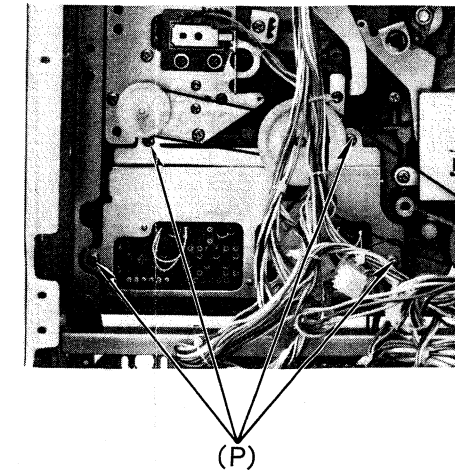


Fig. 15

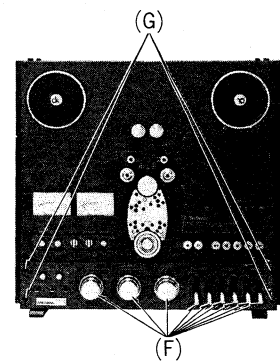


Fig. 8

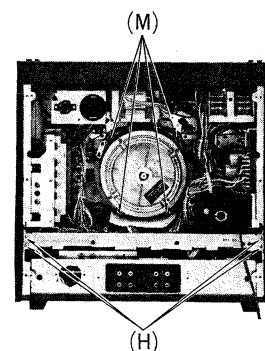


Fig. 9

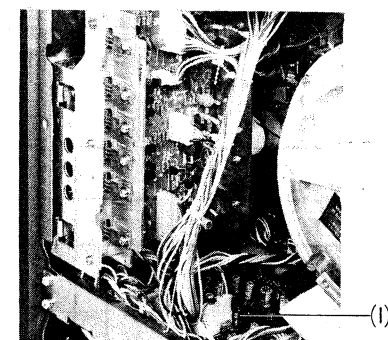


Fig. 10

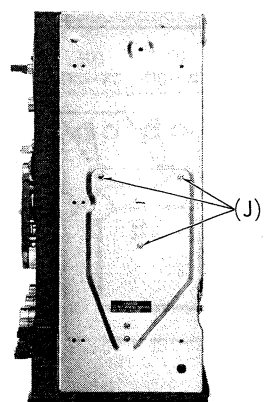


Fig. 11

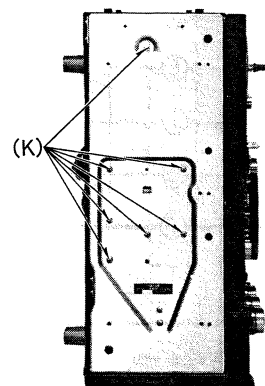


Fig. 12

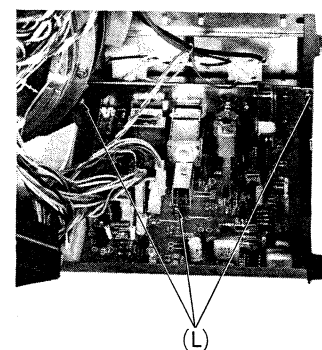
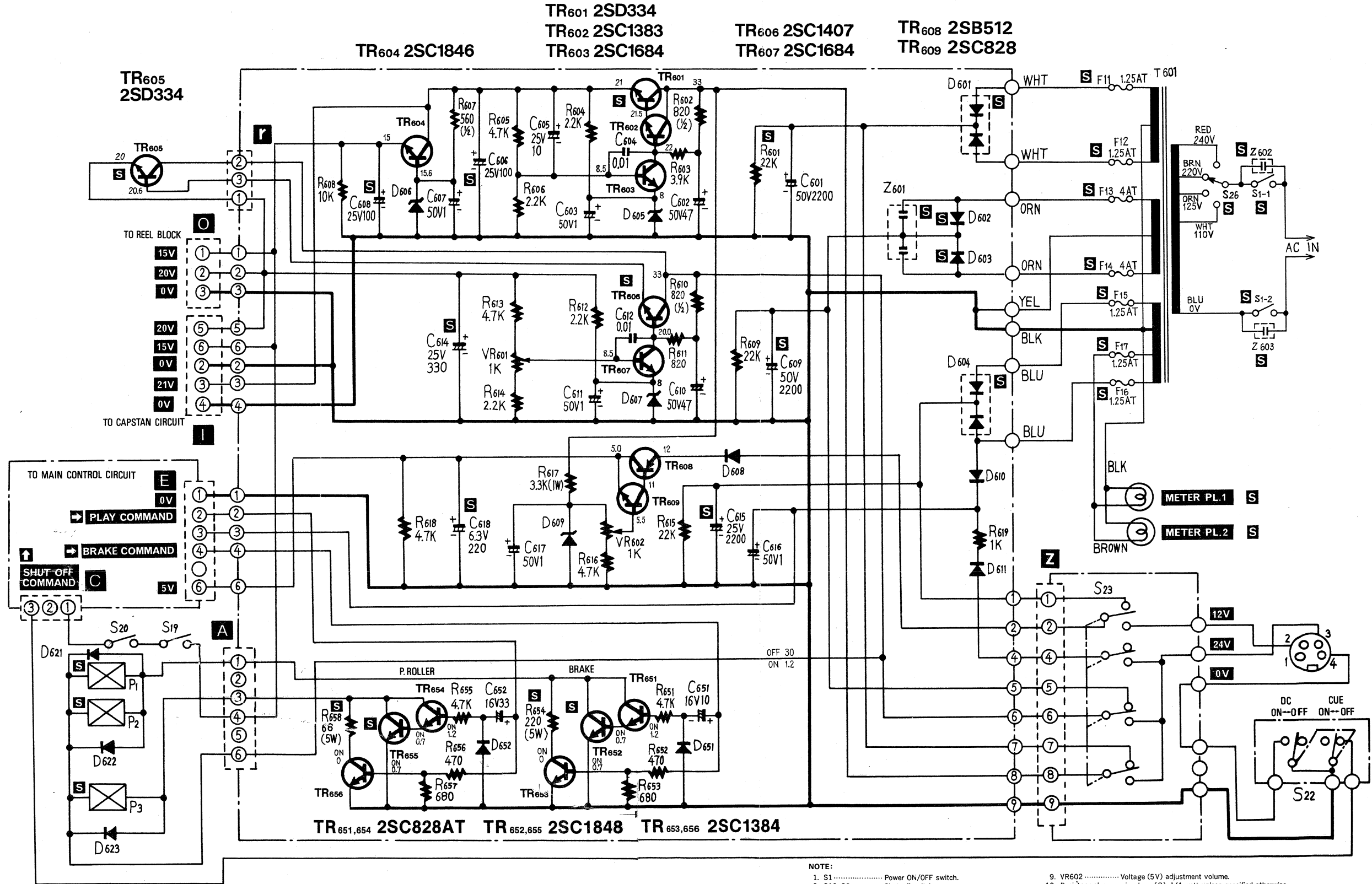


Fig. 13

Procedure	To remove —	Remove —	Pcs.	Shown in fig. —
1	Side board	Screws (A)	(8)	5
—	Top cover	Screws (B)	(4)	6
—	Rear cover	Screws (C) (D)	(2), (4)	6
—	Bottom cover	Screws (E)	(4)	7
2	Function panel and main P.C.B assembly	Knobs (F) Screws (G)	(9), (4)	8
—	Main control P.C.B assembly	Screws (H) (I) Connectors	(4), (1) (10)	9, 10
—	Reel motor driving P.C.B and reel motor tension control P.C.B	Screws (J)	(3)	11
—	Power supply P.C.B	Screws (K)	(7)	12
—	Capstan motor control P.C.B	Screws (L)	(3)	13
—	Capstan motor assembly	Screws (M)	(4)	9
—	Power transformer angle assembly	Screws (N)	(6)	14
3	Reel motor assembly	Screws (O)	(6)	14
—	Function button control P.C.B assembly	Screws (P)	(4)	15

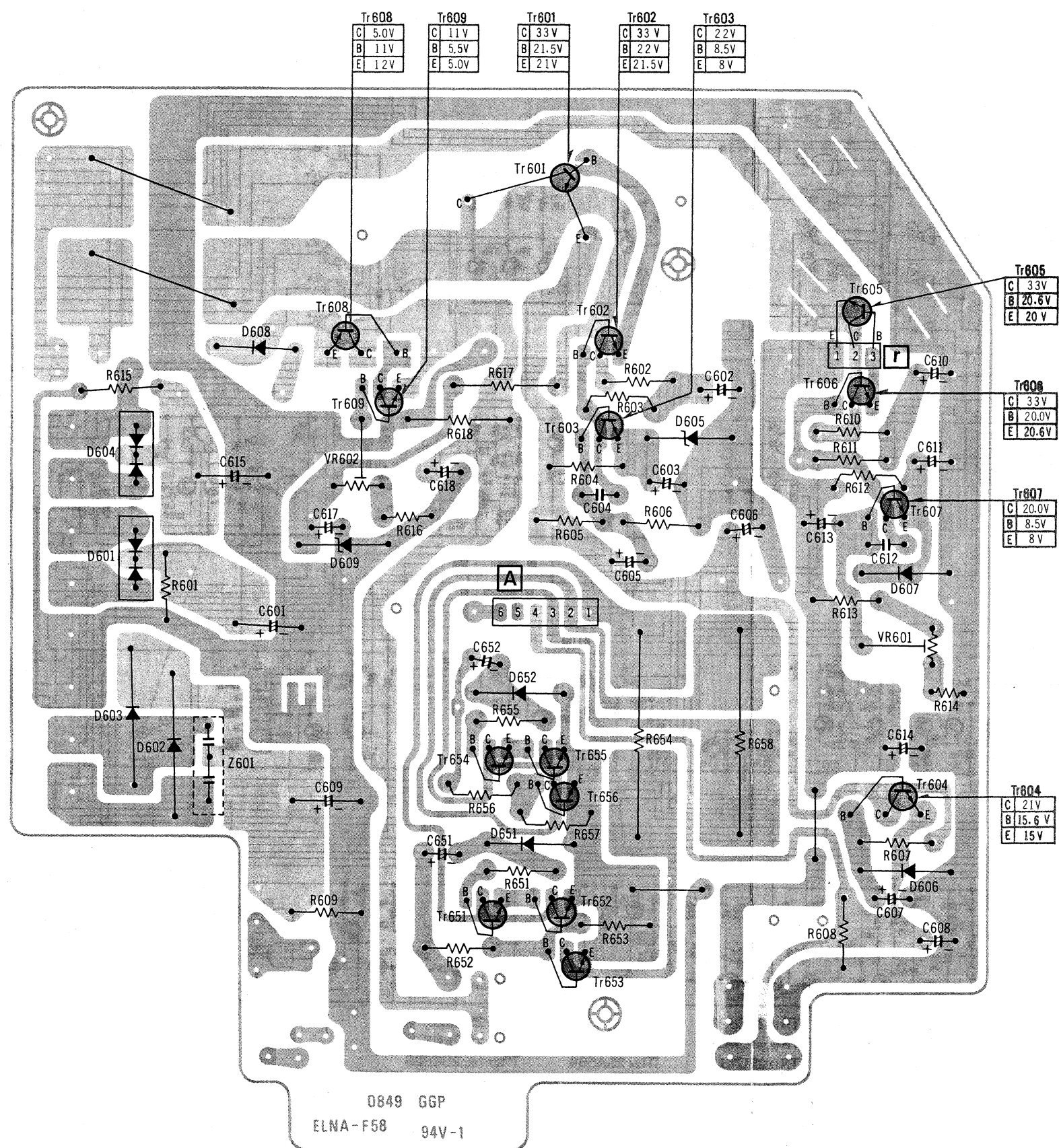
SCHEMATIC DIAGRAM MODEL RS-1700

Power Supply Section



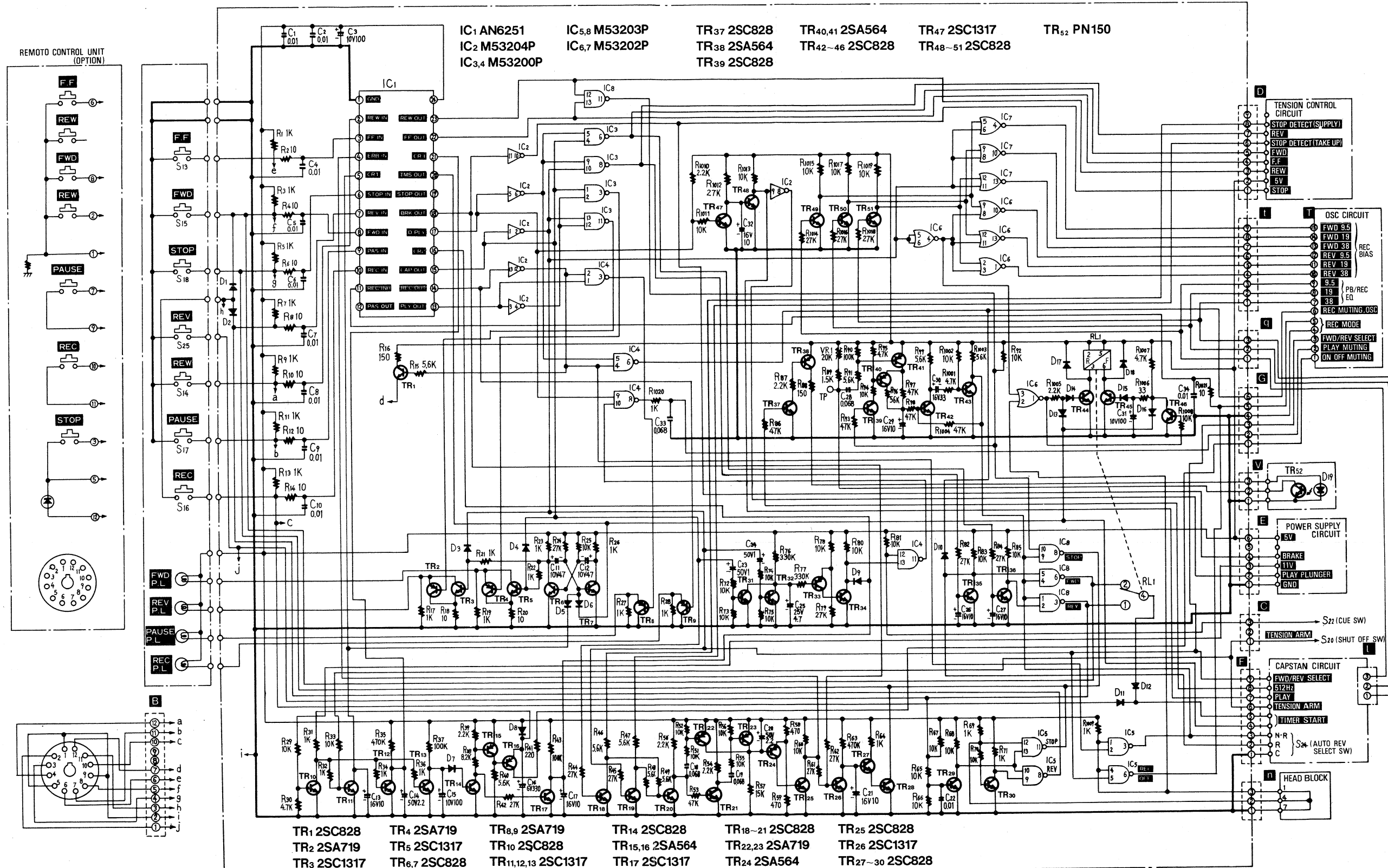
CIRCUIT BOARD

Power Supply



SCHEMATIC DIAGRAM MODEL RS-1700

Main Control Section

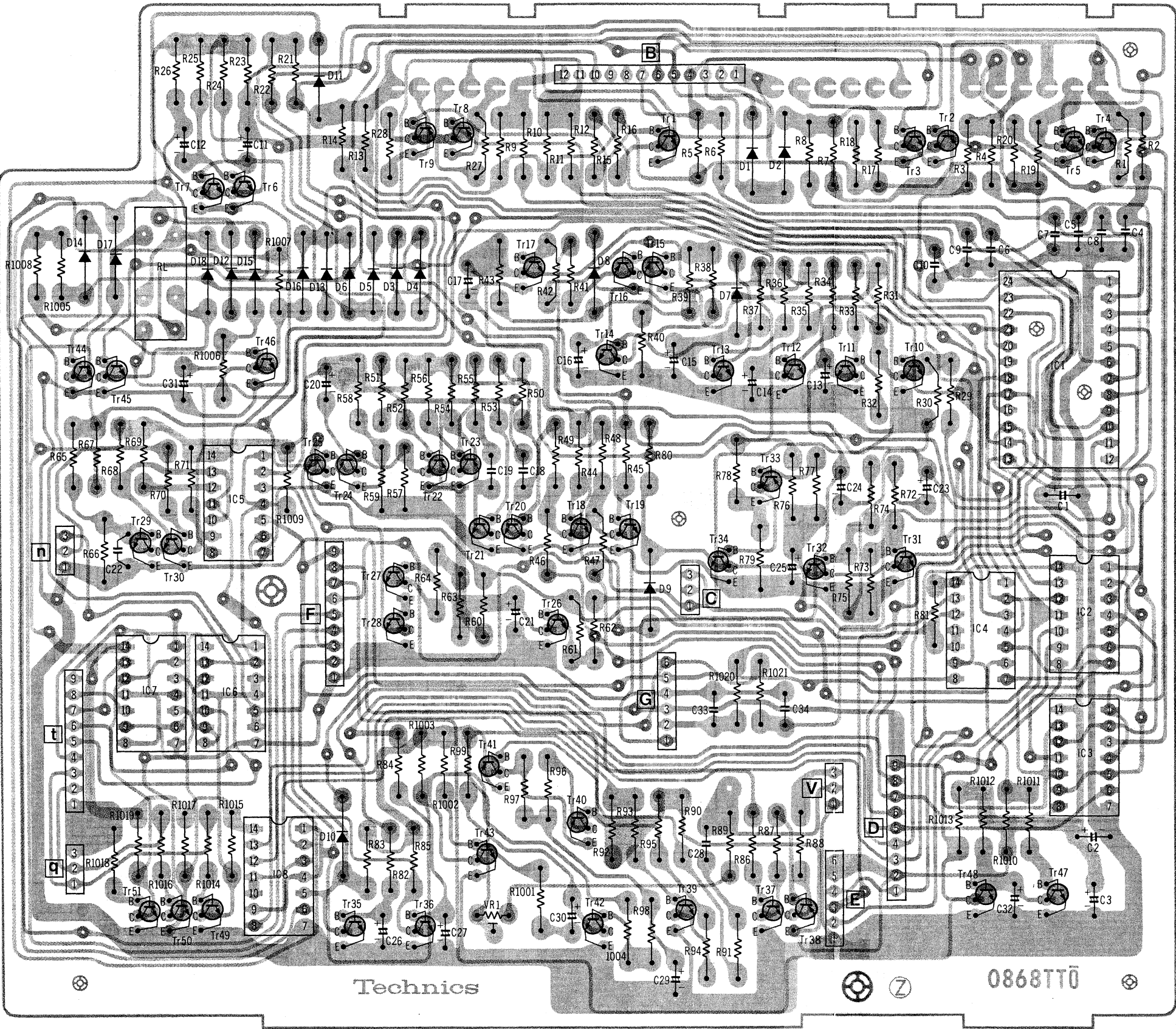


NOTE:

- S13~18, 25..... Control key switch.
- VR1..... Photo transistor adjustment VR.
- RL1..... Forward/reverse select relay.
- Resistor values are in ohms (Ω), 1/4 watt unless specified otherwise.
K=1,000 Ω .
- Capacitor values are in microfarads (μ F) unless specified otherwise.
P=Pico-farads.
- All voltage values show in circuitry are under no signal condition with volume control at minimum position.
For measurement, use VTVM.
- indicates that only parts specified by the manufacturer be used for safety.

CIRCUIT BOARD

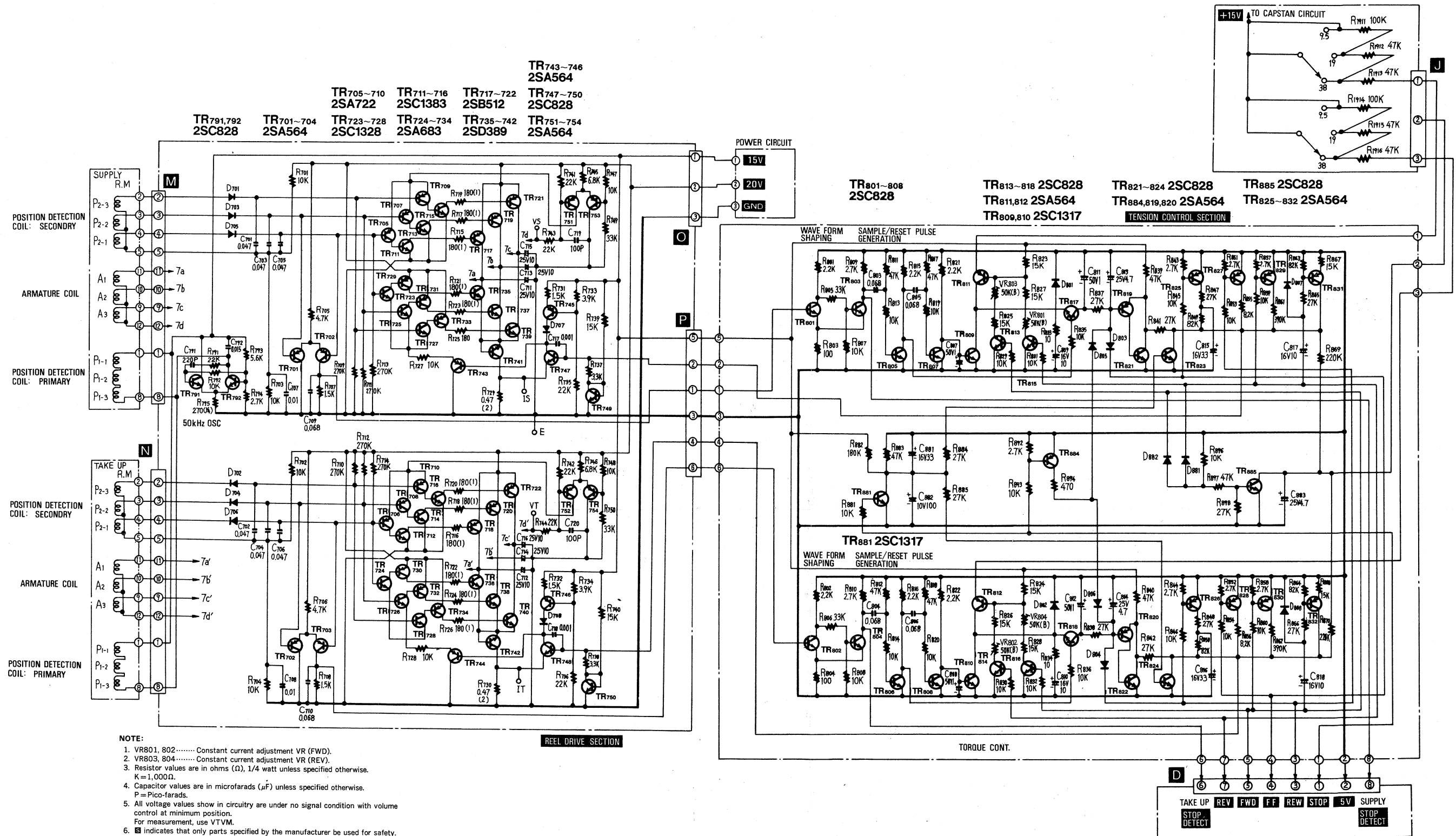
Main Control



NOTE:
The circuit shown in red on the conductor is B circuit.
Values indicated in are DC voltage between the chassis and electrical parts.

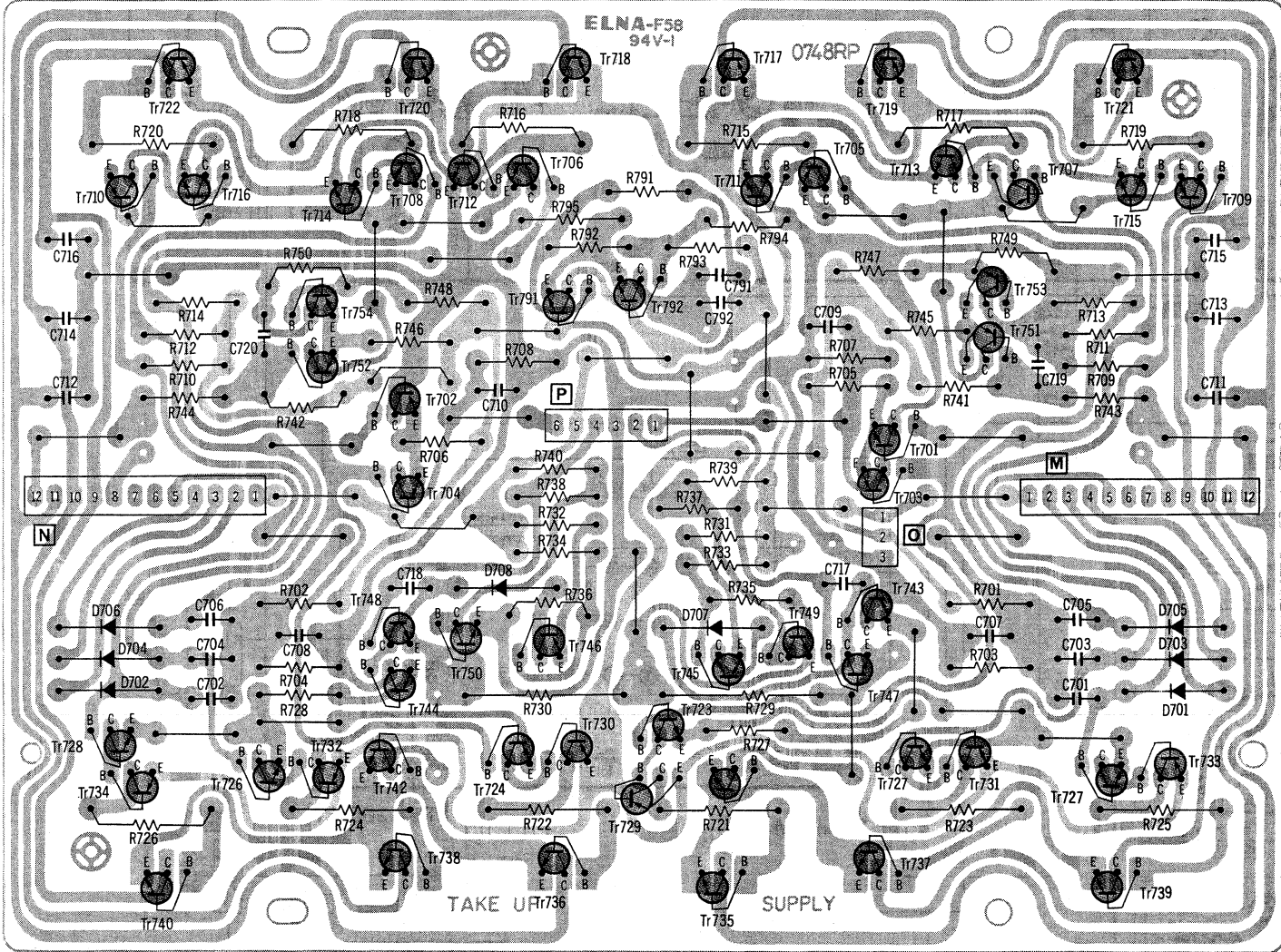
SCHEMATIC DIAGRAM MODEL RS-1700

Reel Motor Section

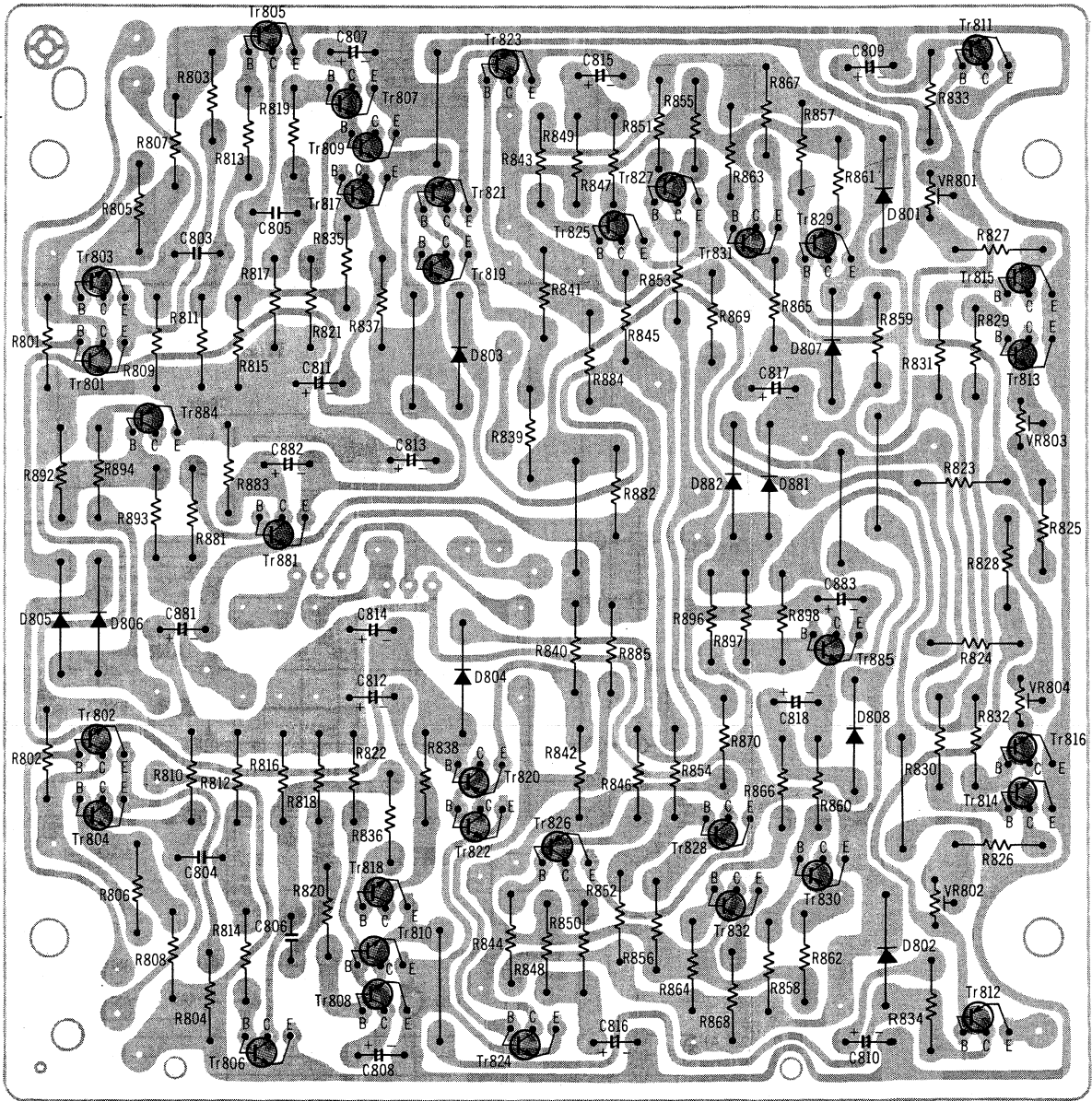


CIRCUIT BOARD

Reel Motor Driving



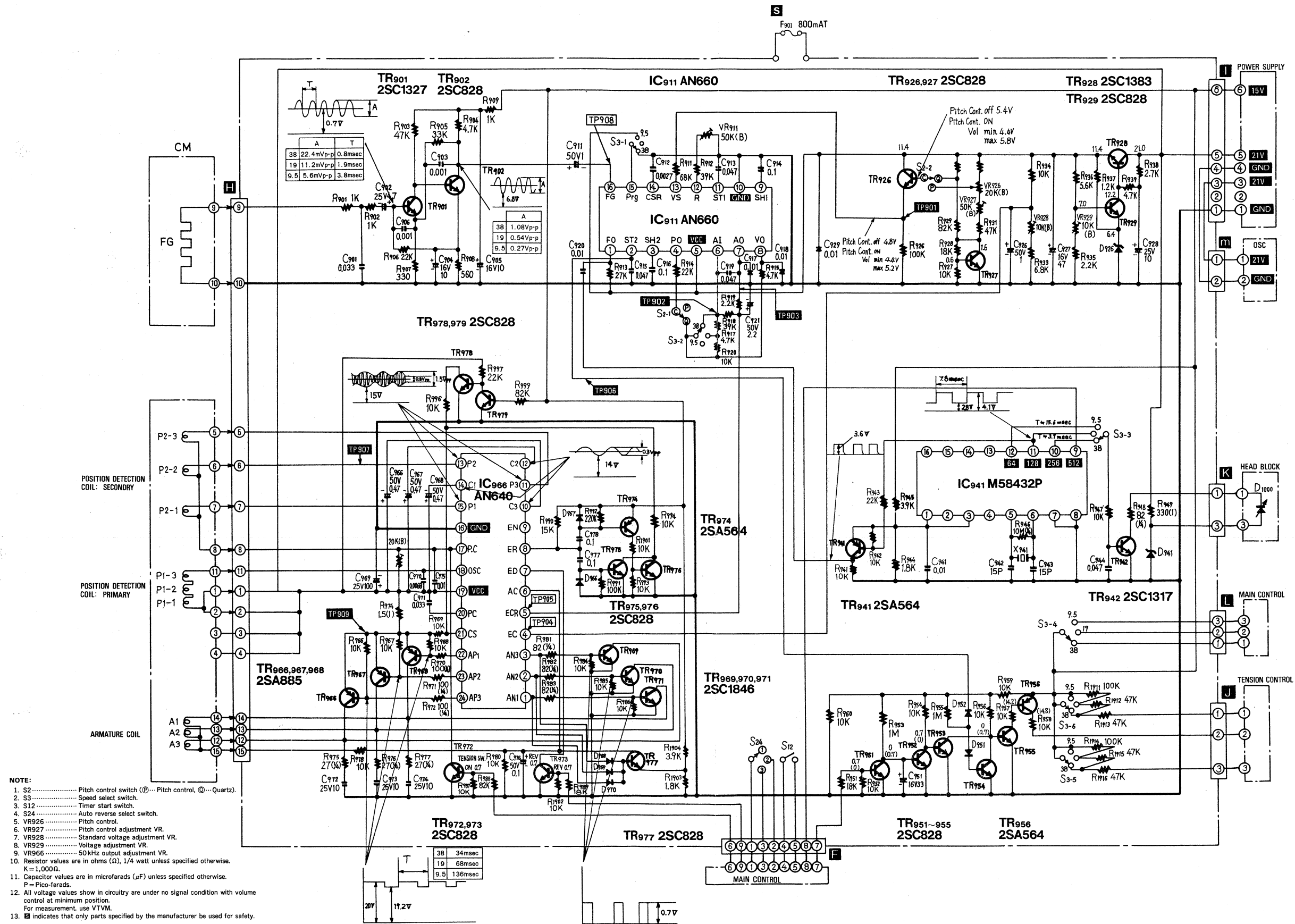
Reel Motor Tension Control



NOTE:
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Values indicated in are DC voltage between the chassis
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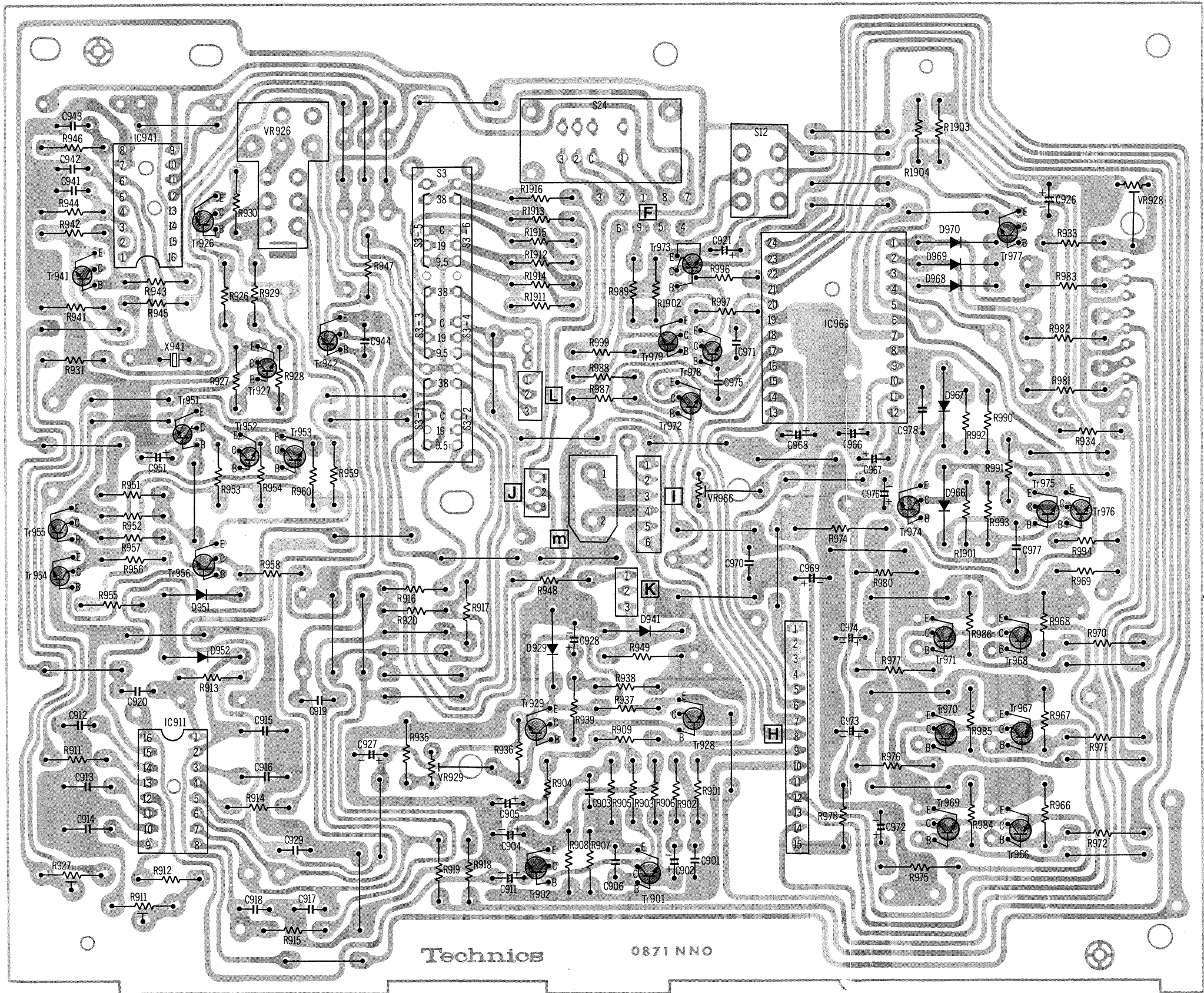
SCHEMATIC DIAGRAM MODEL RS-1700

Capstan Motor Section



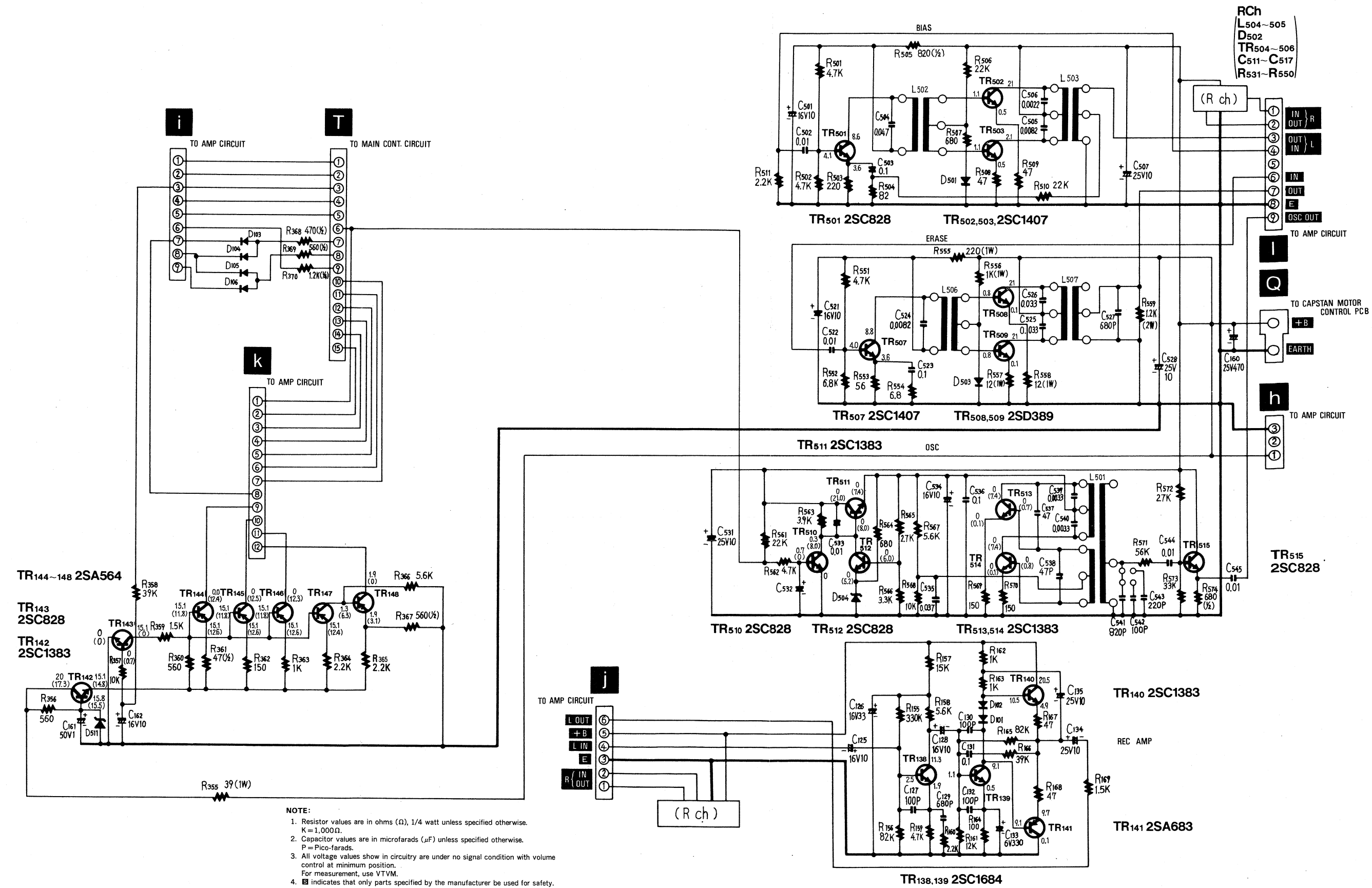
CIRCUIT BOARD

Capstan Motor Control



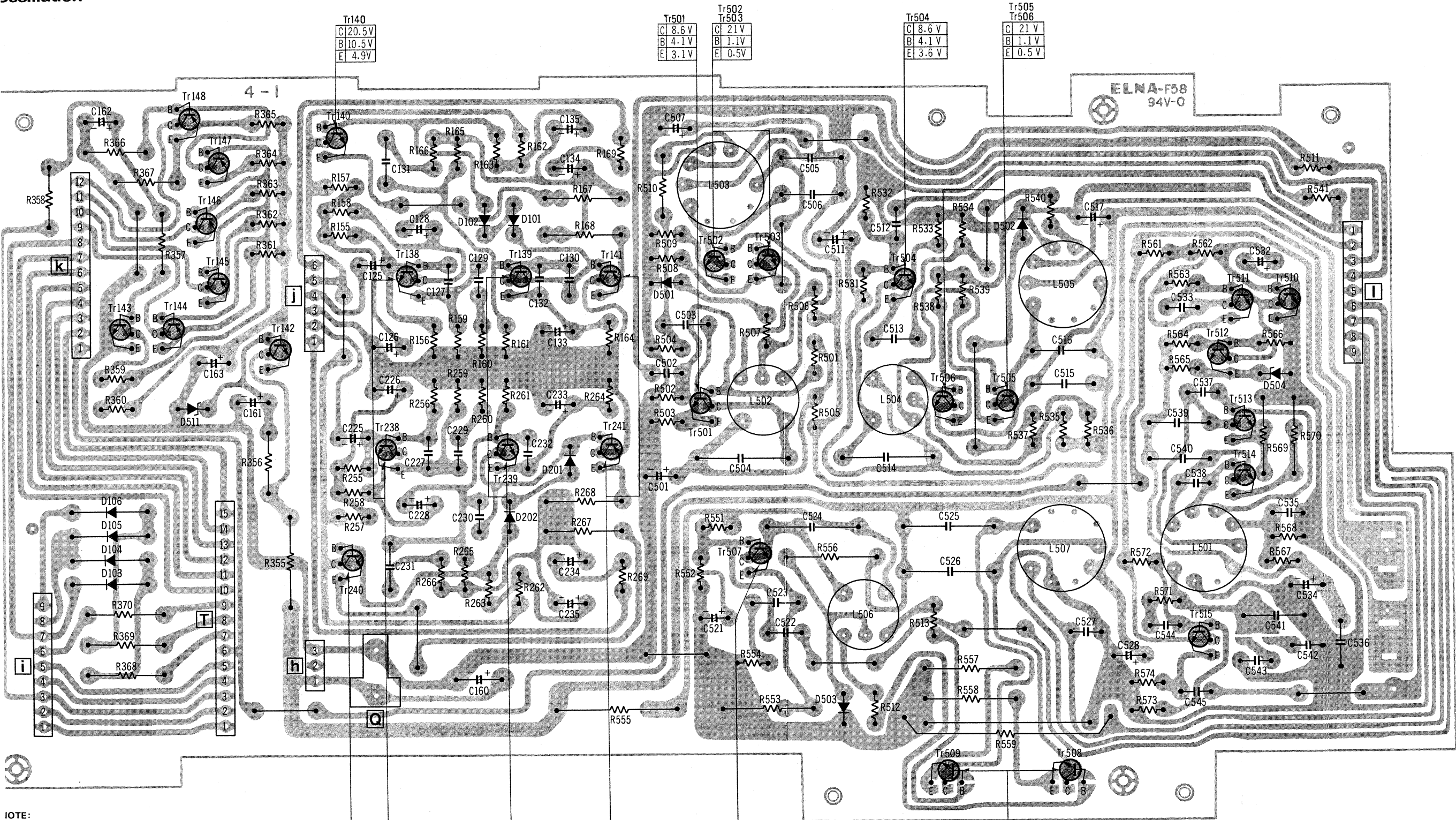
NOTE:
The circuit shown in red on the conductor is B circuit.
Values indicated in [] are DC voltage between the chassis
and electrical parts.

SCHEMATIC DIAGRAM MODEL RS-1700



CIRCUIT BOARD

Oscillation



NOTE:
The circuit shown in red on the conductor is B circuit.
Values indicated in are DC voltage between the chassis and electrical parts.

Tr240
C 20.5V
B 10.5V
E 4.9V

Tr138 Tr238
C 11.3V
B 2.5V
E 1.9V

Tr139 Tr239
C 9.1V
B 1.1V
E 0.5V

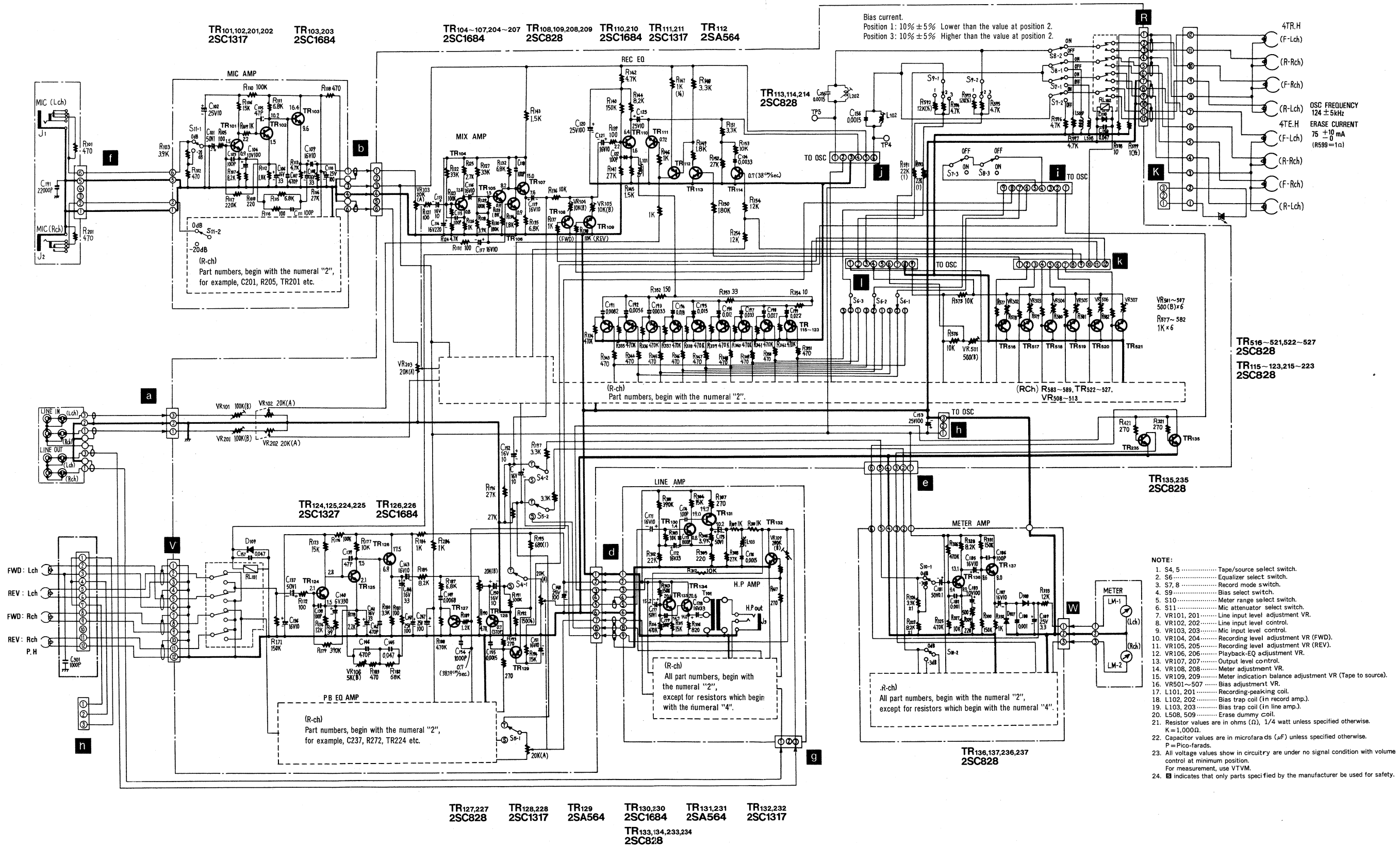
Tr241
C 0.1V
B 9.1V
E 9.7V

Tr507
C 8.8V
B 4.0V
E 3.6V

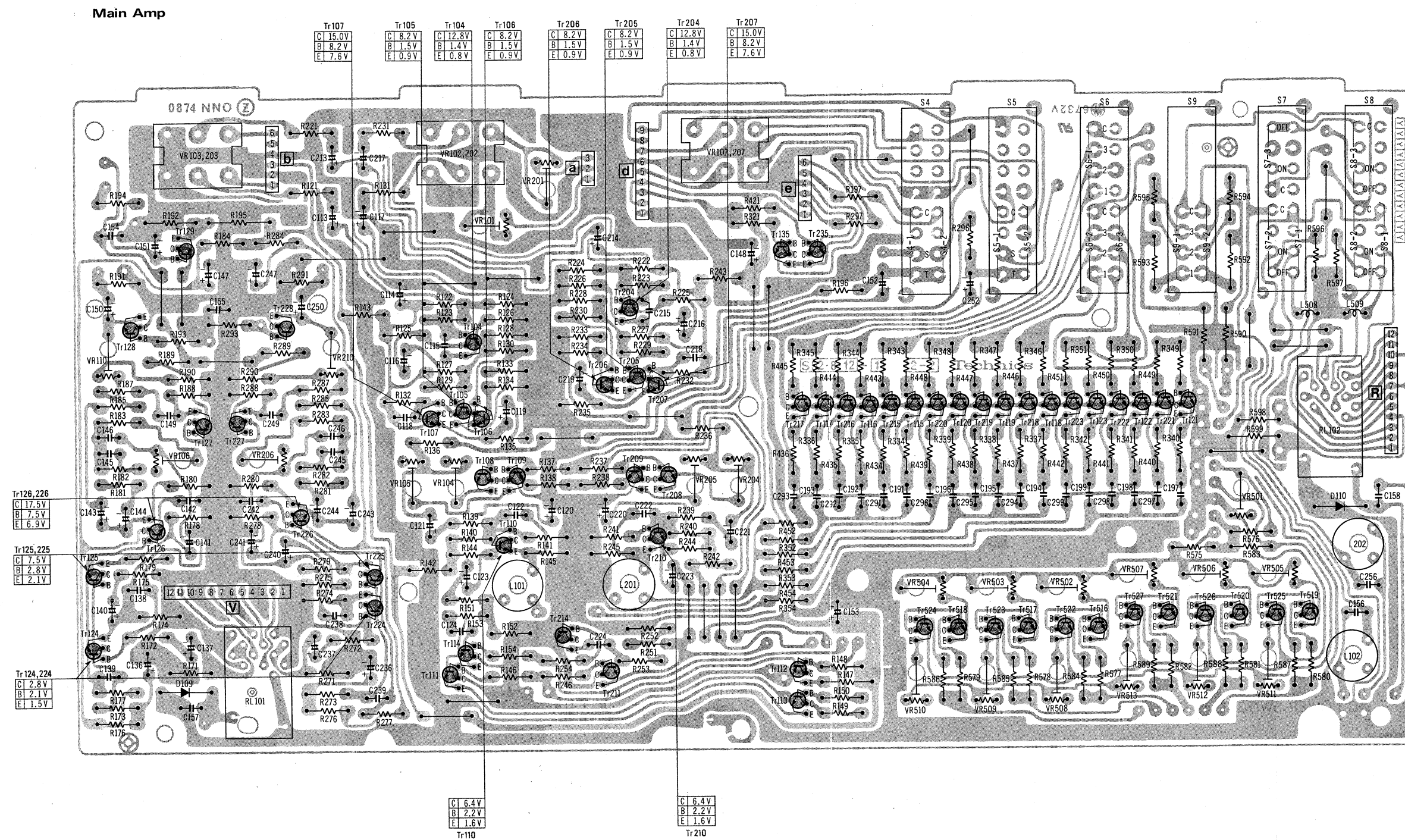
Tr508 Tr509
C 21V
B 0.8V
E 0.1V

SCHEMATIC DIAGRAM MODEL RS-1700

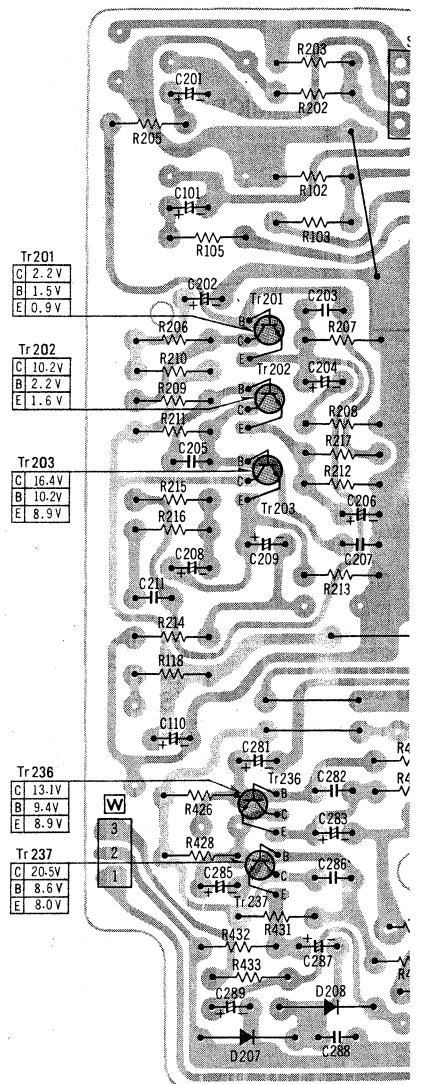
Main Amp Section



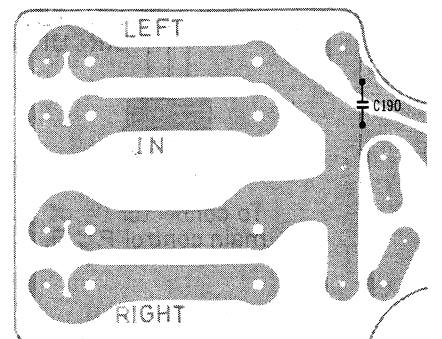
CIRCUIT BOARD



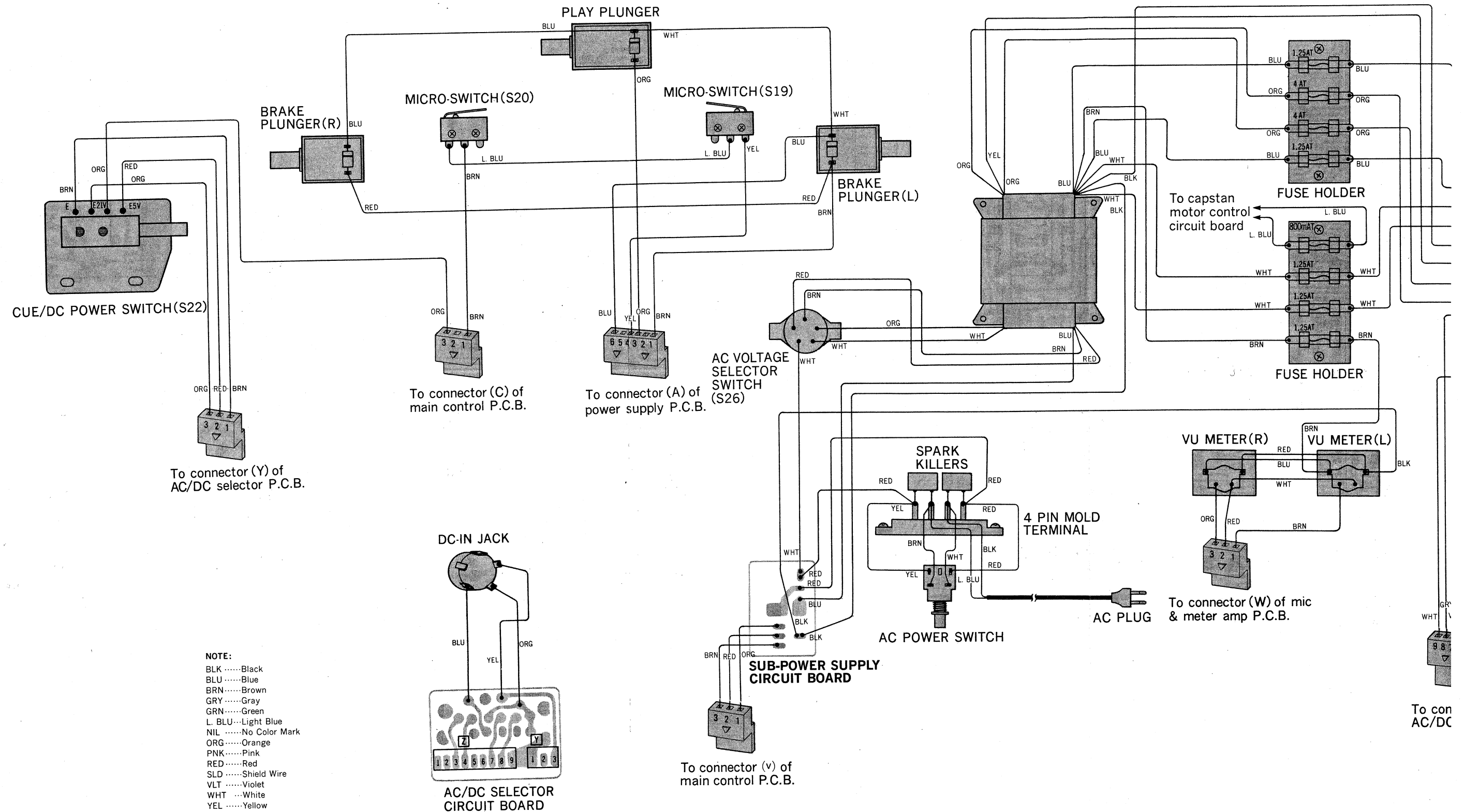
Mic and Meter Amp



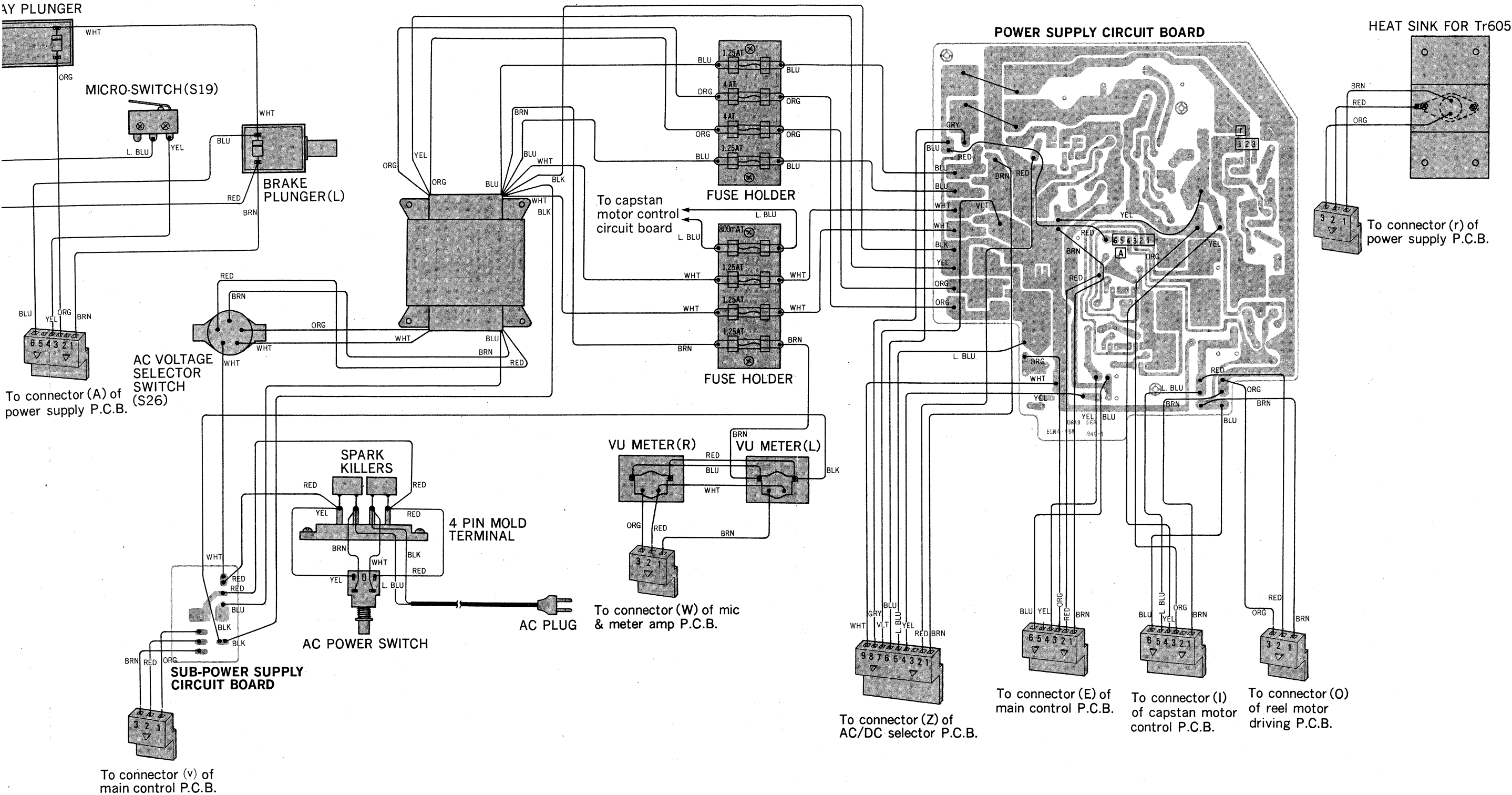
Jack



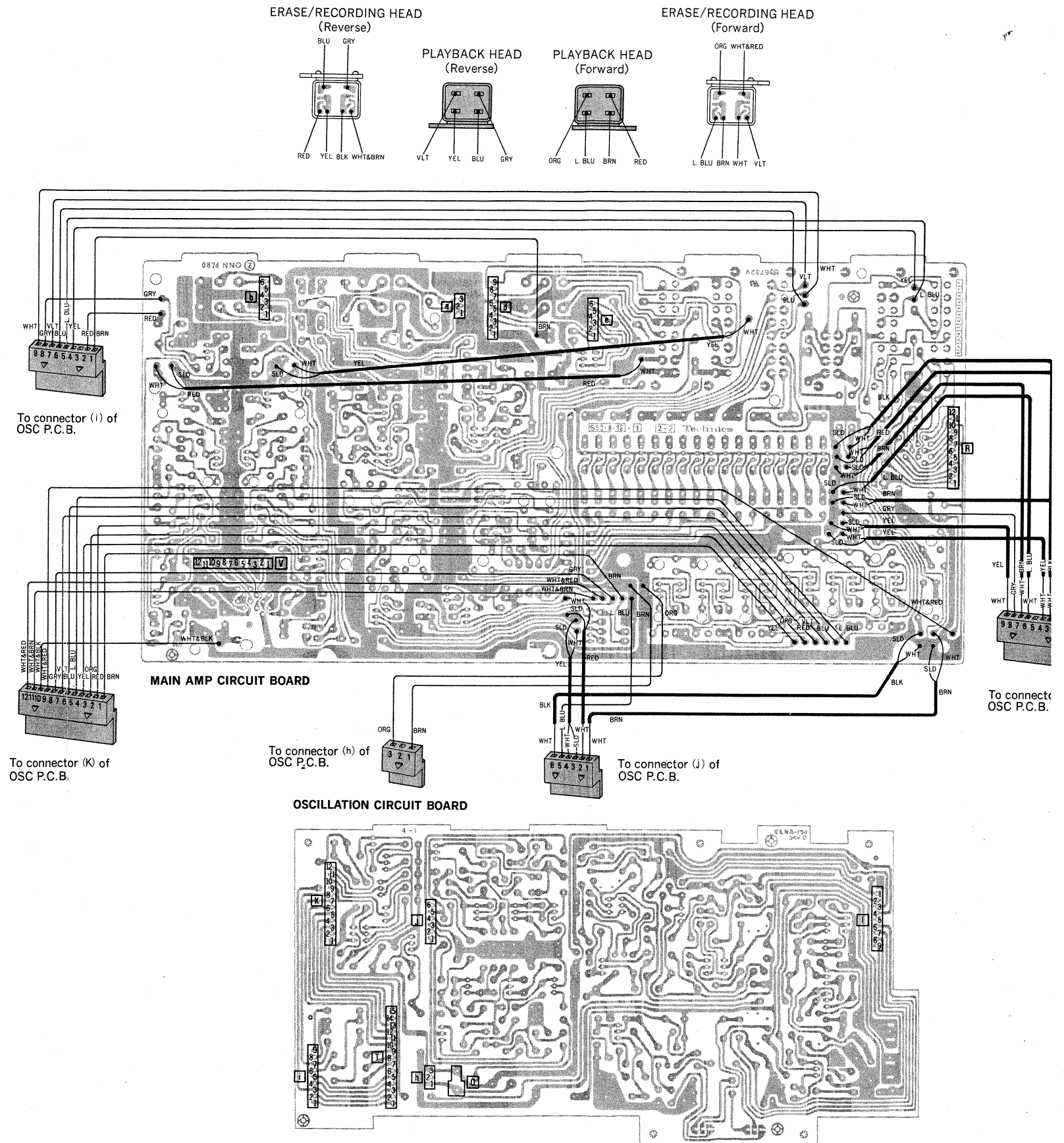
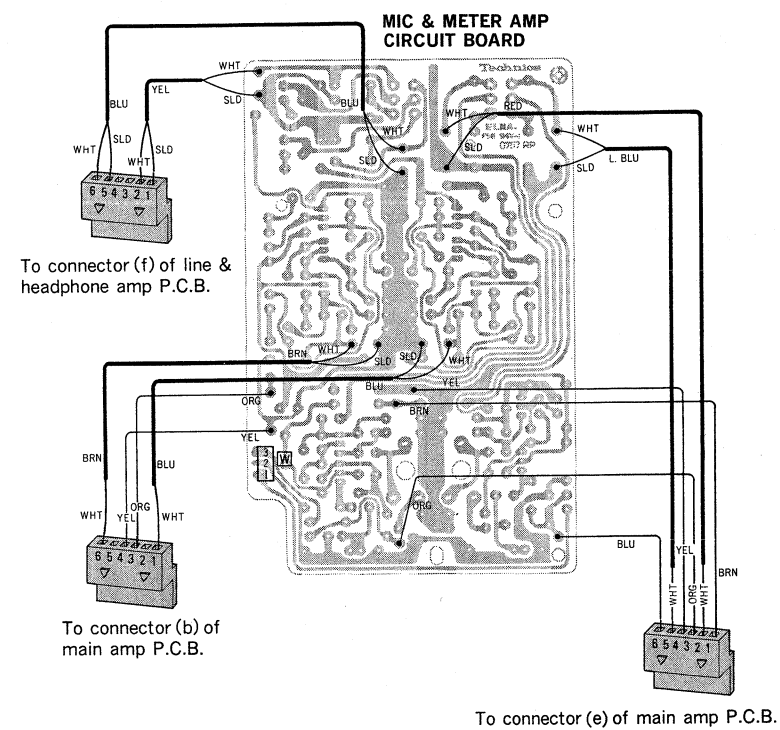
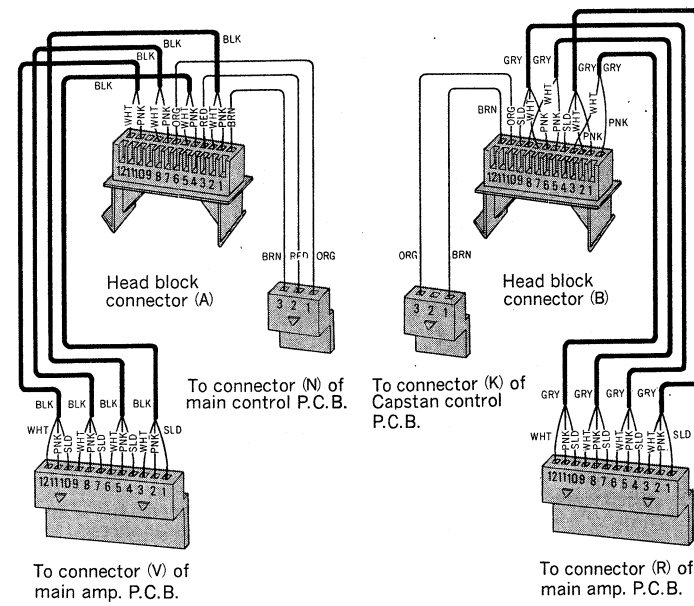
WIRING CONNECTION DIAGRAM MODEL RS-1700



DEL RS-1700

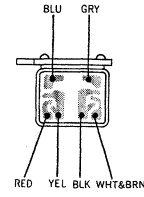


WIRING CONNECTION DIAGRAM MODEL RS-1700

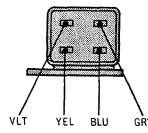


GRAM MODEL RS-1700

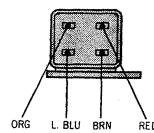
ERASE/RECORDING HEAD
(Reverse)



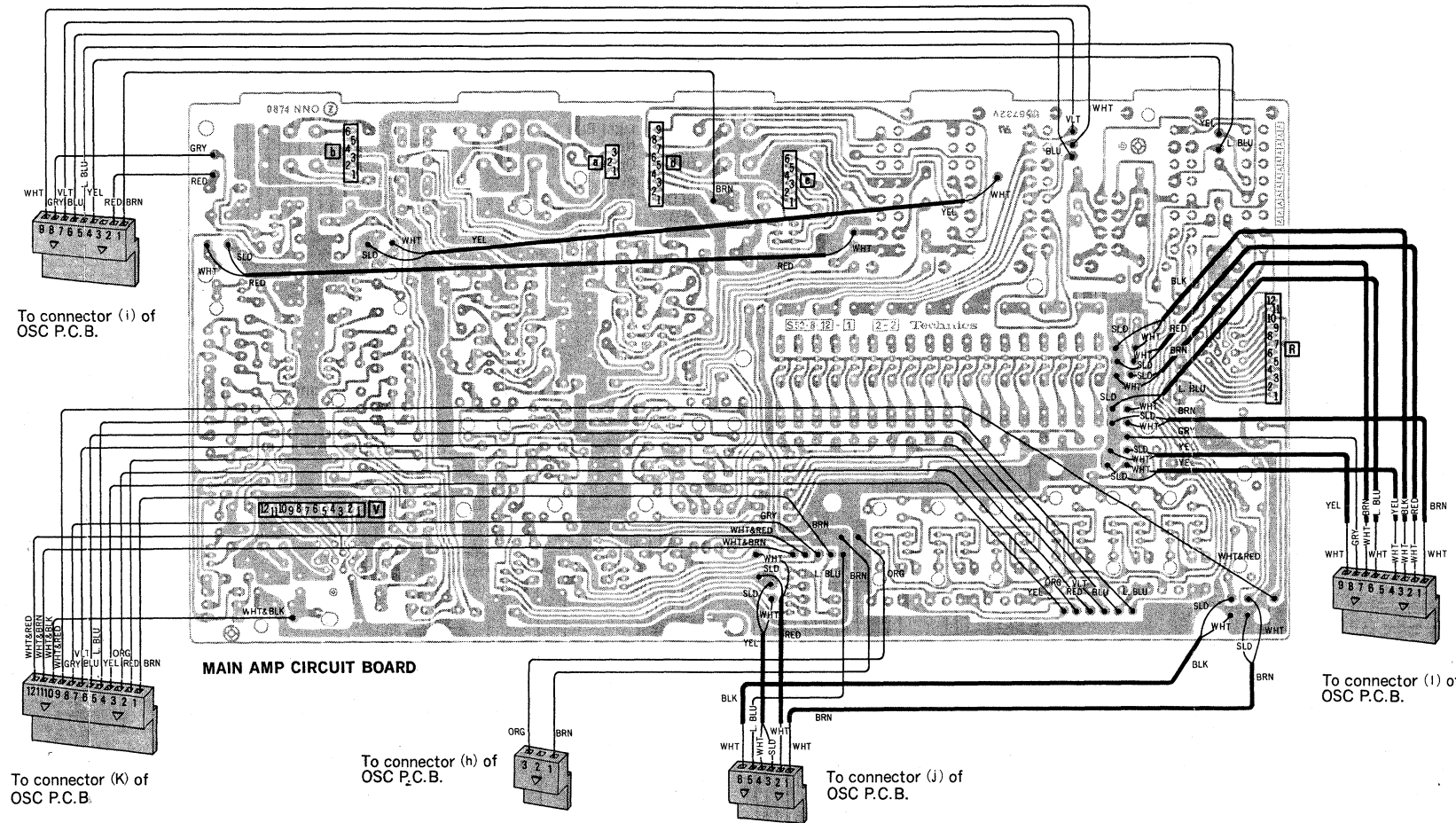
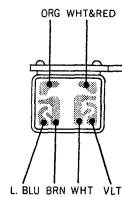
PLAYBACK HEAD
(Reverse)



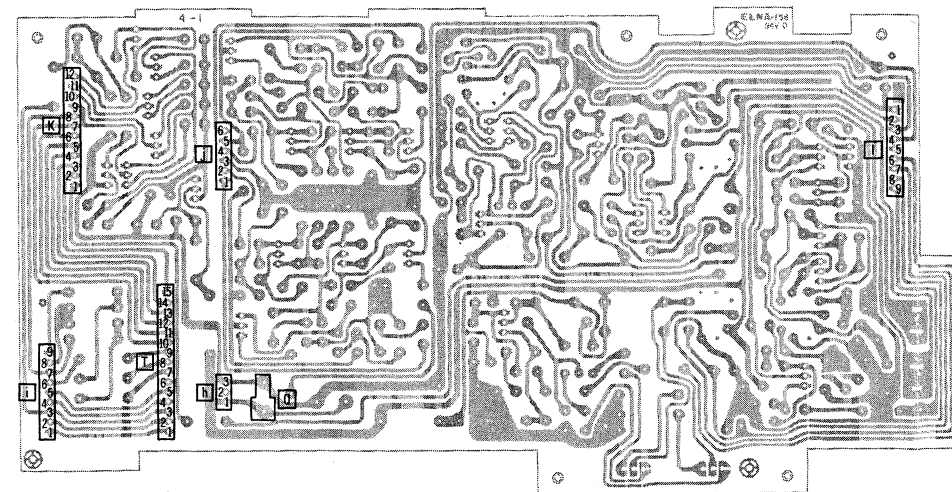
PLAYBACK HEAD
(Forward)



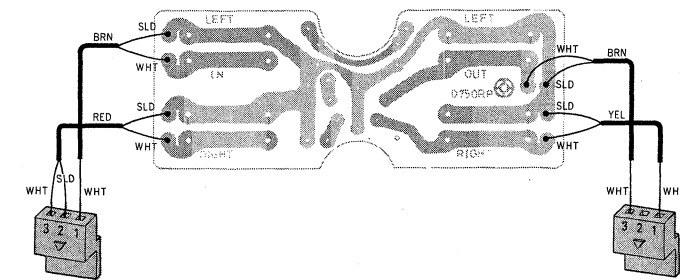
ERASE/RECORDING HEAD
(Forward)



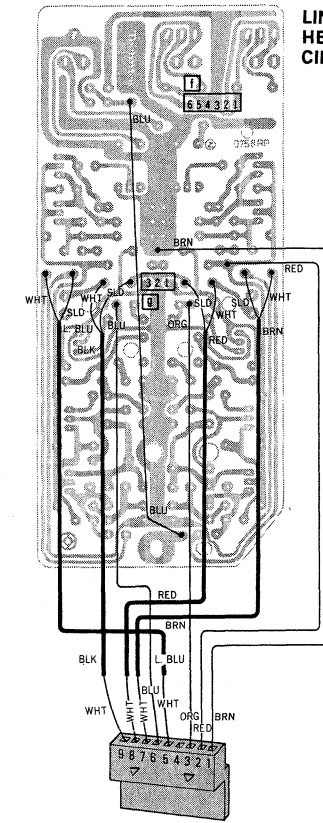
OSCILLATION CIRCUIT BOARD



JACK CIRCUIT BOARD



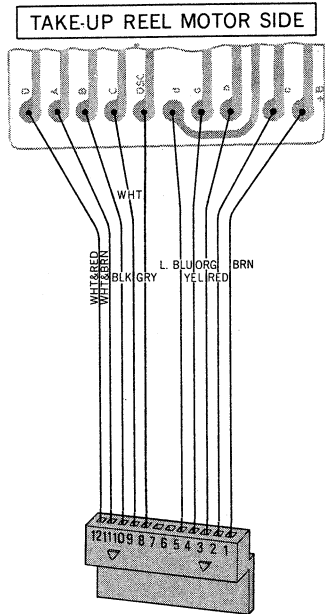
LINE-OUT &
HEADPHONE AMP
CIRCUIT BOARD



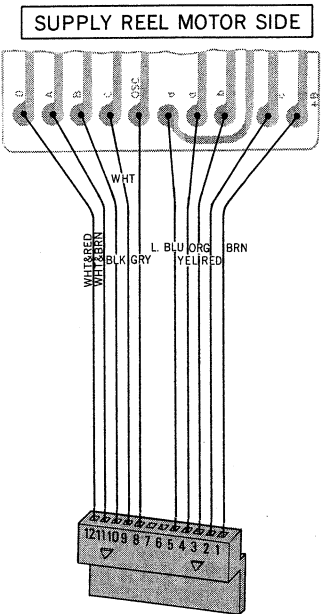
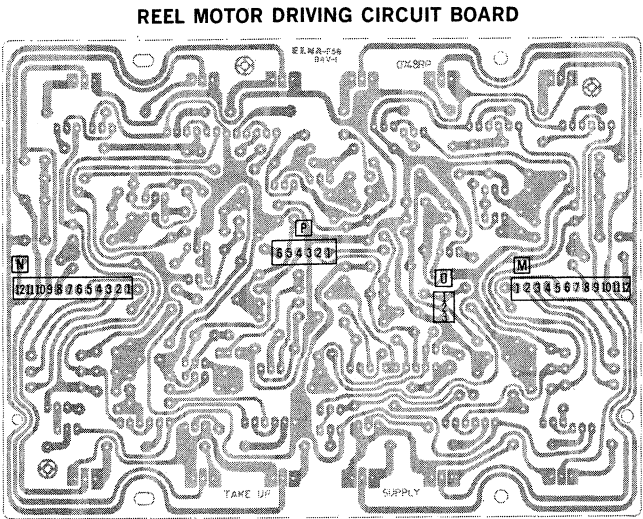
NOTE:

BLK Black
BLU Blue
BRN Brown
GRY Gray
GRN Green
L. BLU...Light Blue
NIL No Color Mark
ORG Orange
PNK Pink
RED Red
SLD Shield Wire
VLT Violet
WHT White
YEL Yellow

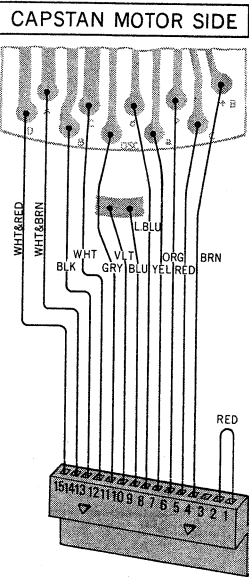
WIRING CONNECTION DIAGRAM MODEL RS-1700



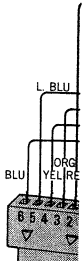
To connector (N) of reel motor driving P.C.B.



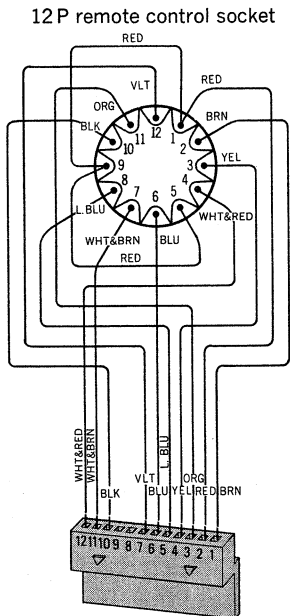
To connector (M) of reel motor driving P.C.B.



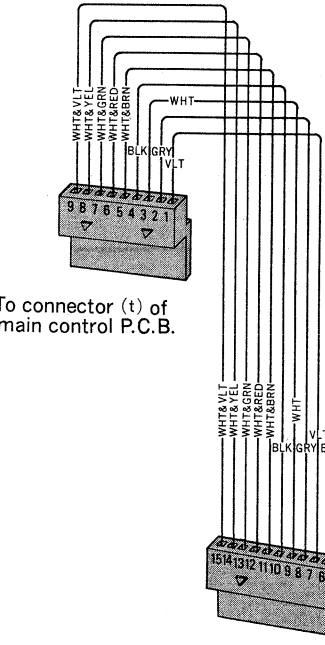
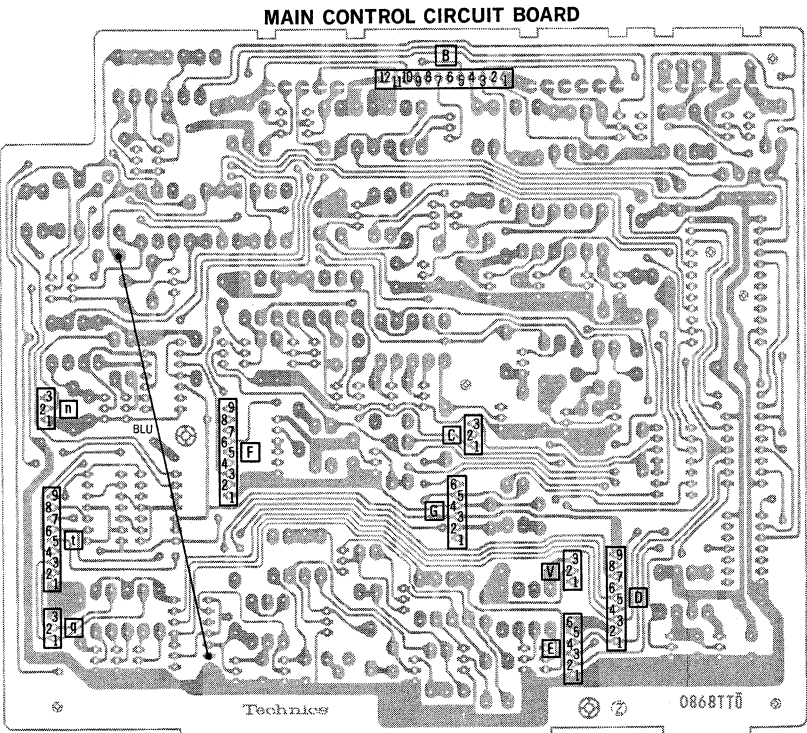
To connector (H) of capstan motor control P.C.B.



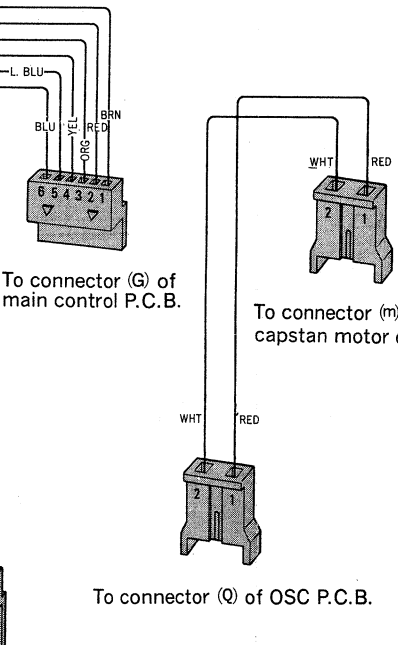
To connector (F) of reel motor driving P.C.B.



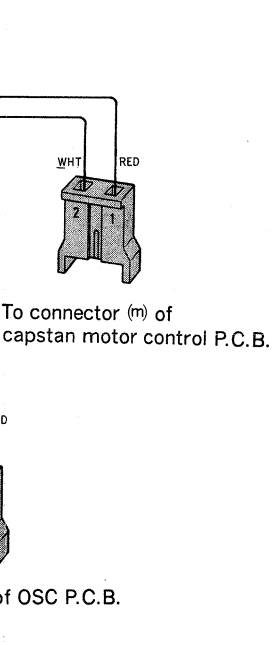
To connector (B) of main control P.C.B.



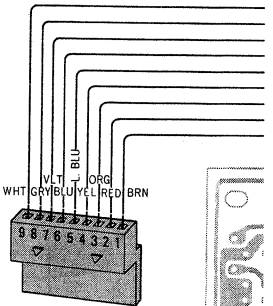
To connector (t) of main control P.C.B.



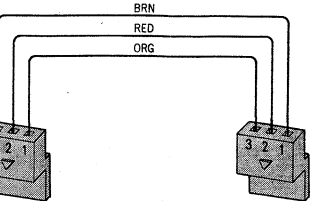
To connector (G) of main control P.C.B.



To connector (m) of capstan motor control P.C.B.

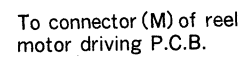


To connector (F) of main control P.C.B.

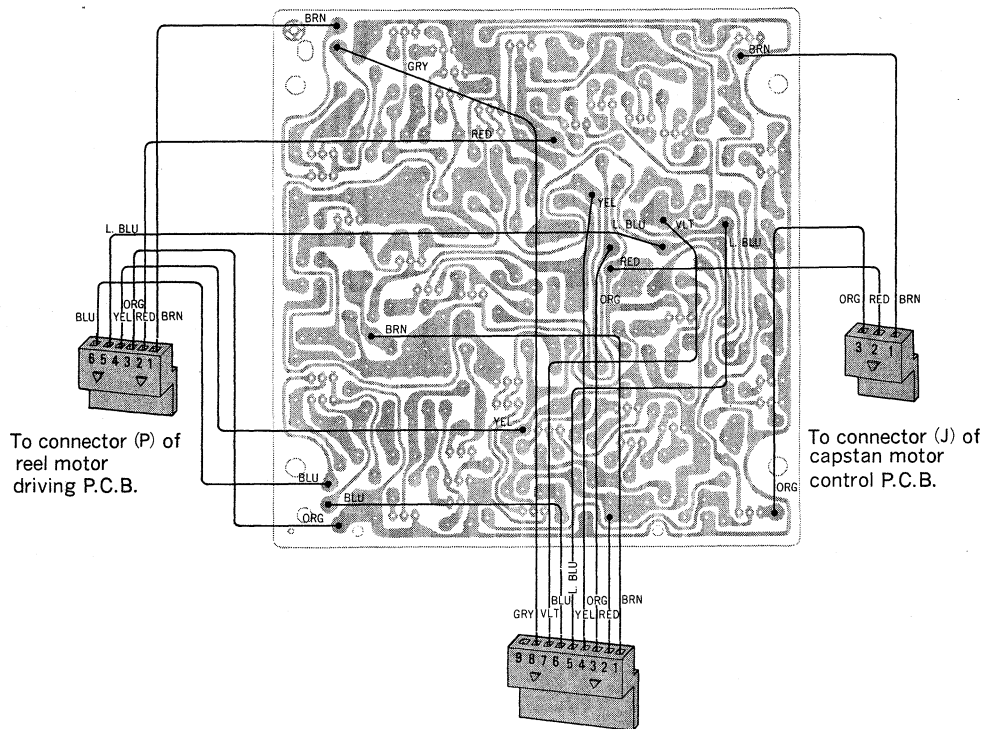
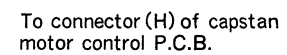


To connector (q) of main control P.C.B.

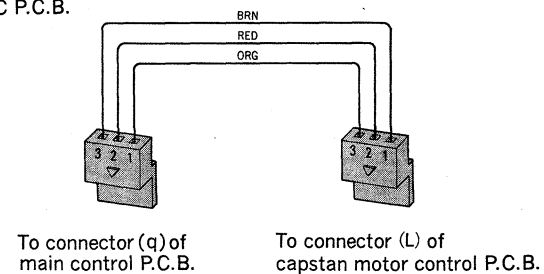
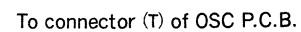
To connector (L) of capstan motor control P.C.B.



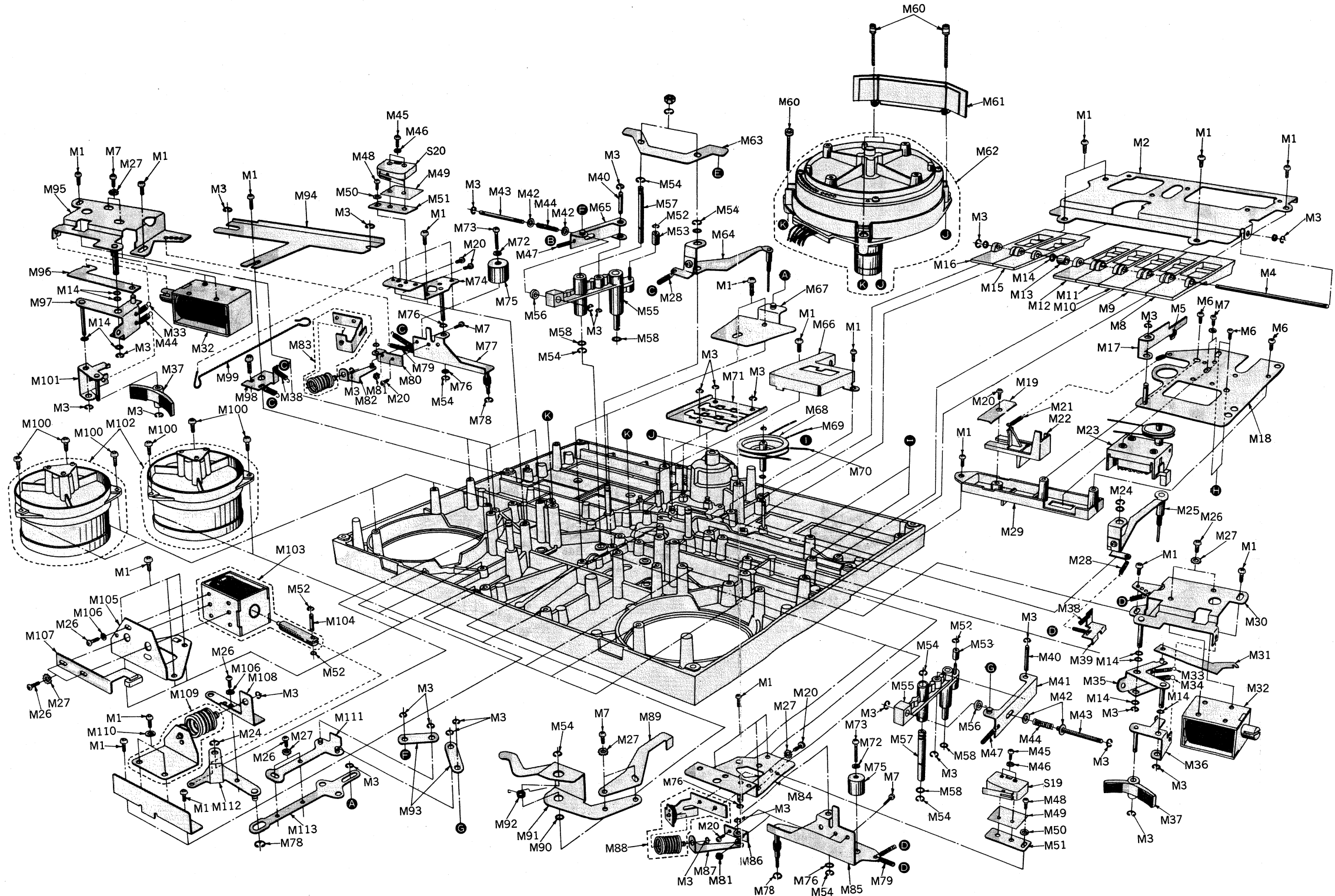
BLKBlack
BLUBlue
BRNBrown
GRYGray
GRNGreen
L. BLU.....Light Blue
NILNo Color Mark
ORGOrange
PNKPink
REDRed
SLDShield Wire
VLTViolet
WHTWhite
YELYellow



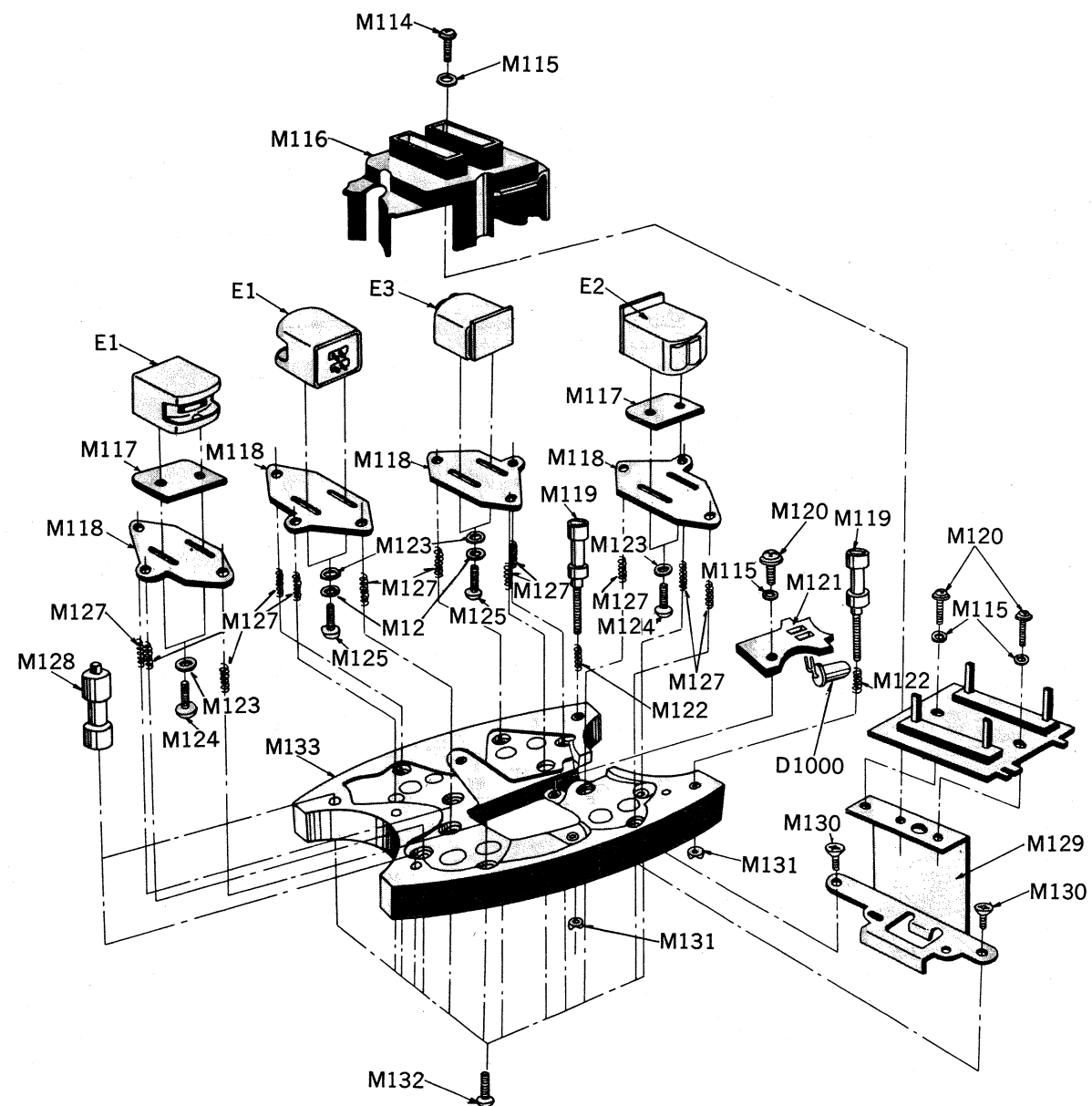
To connector (D) of main control P.C.B.



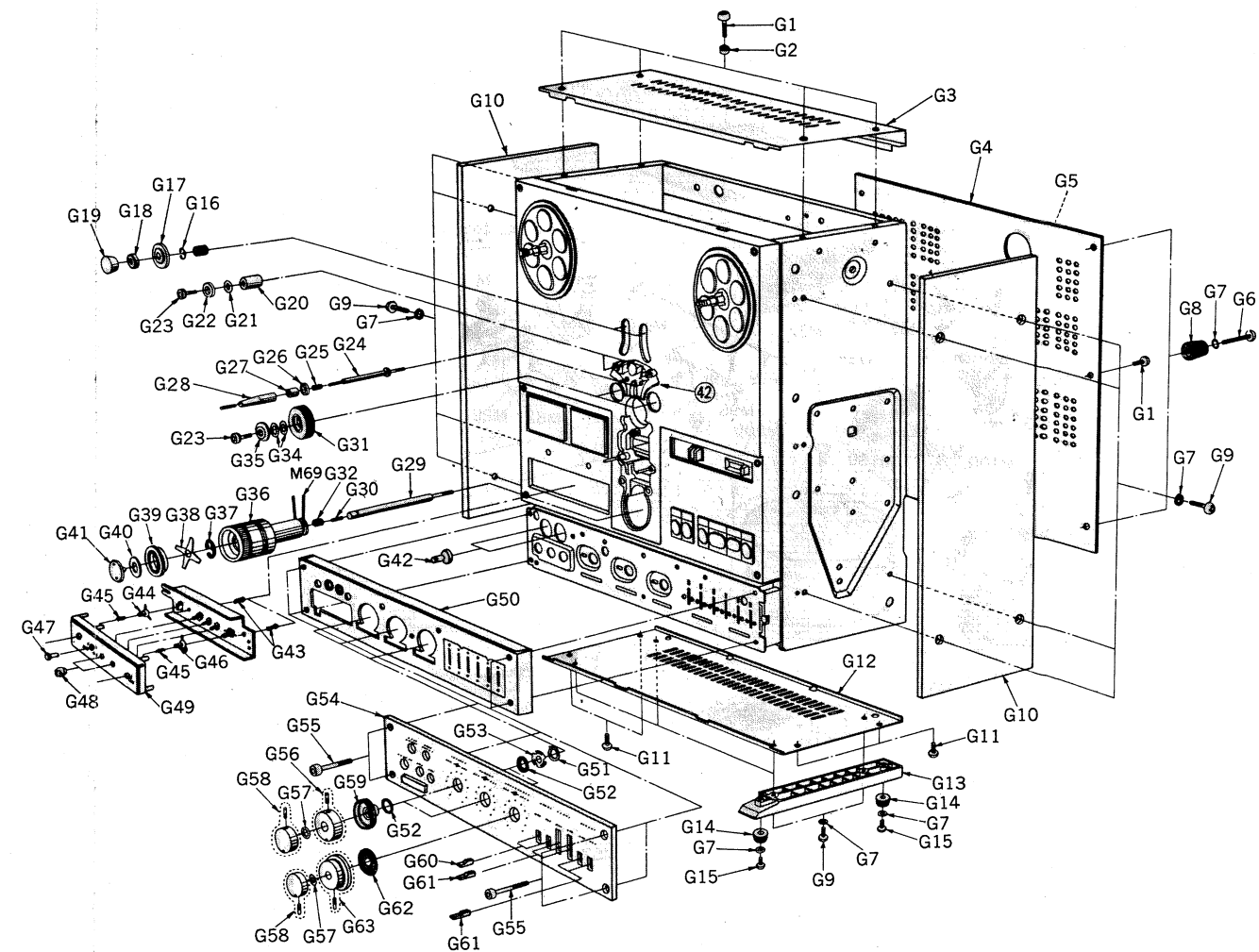
EXPLODED VIEWS



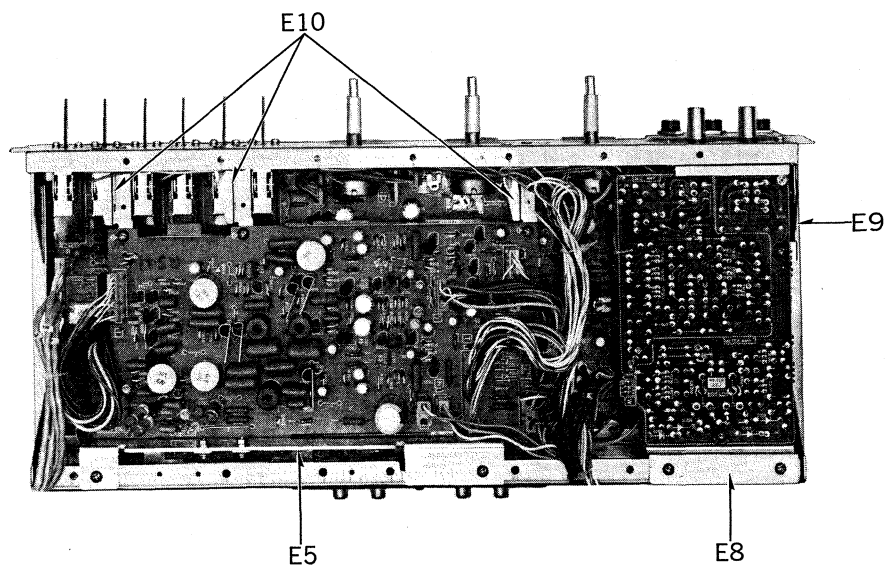
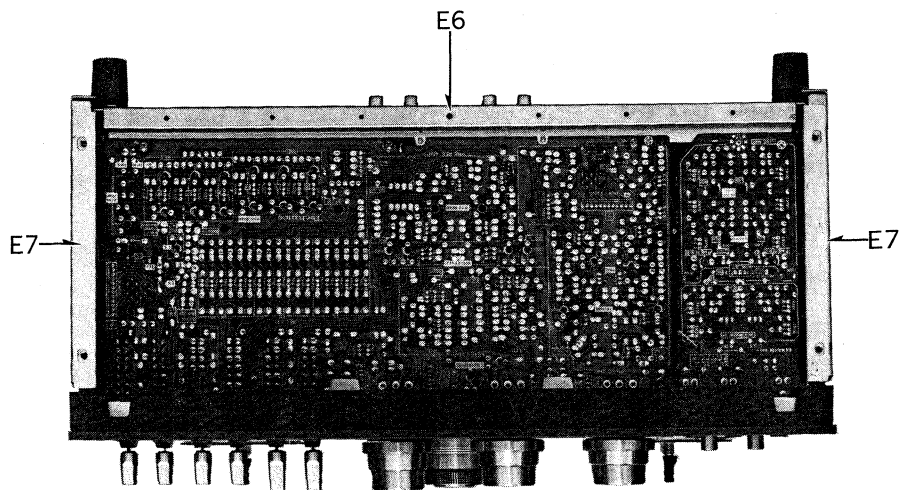
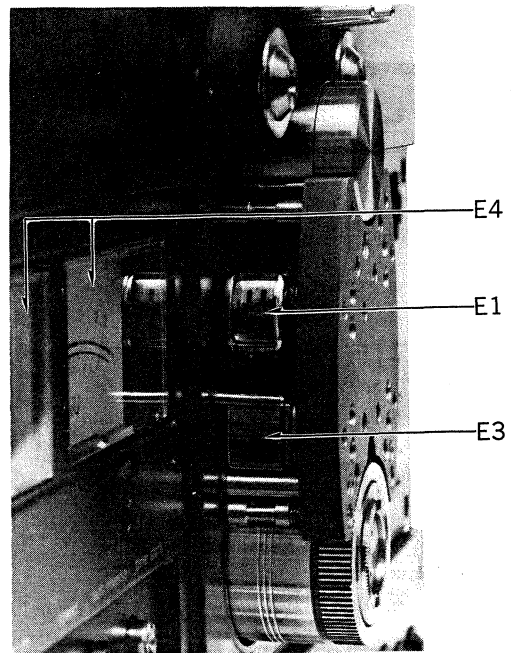
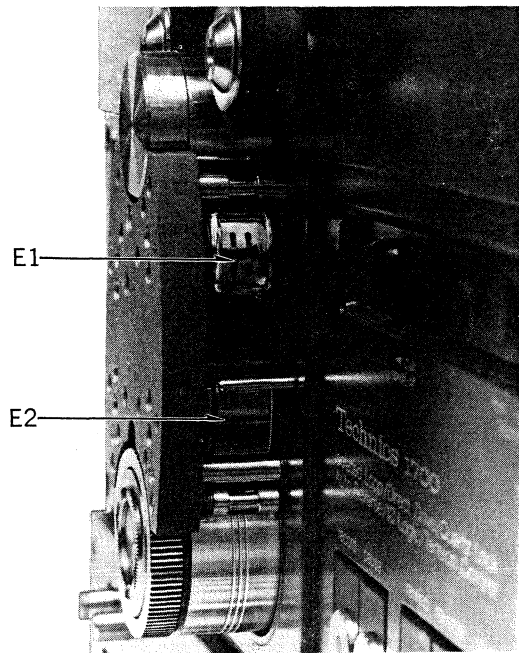
EXPLODED VIEWS

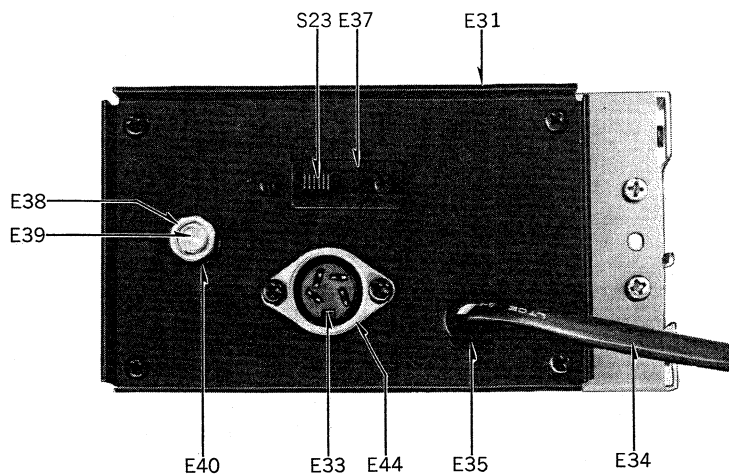
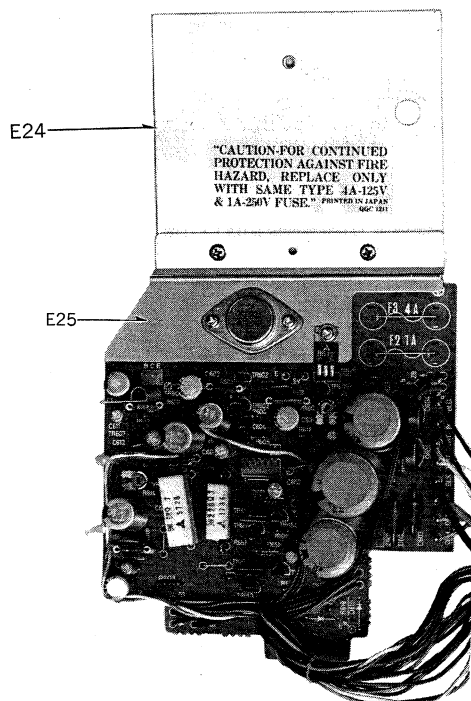
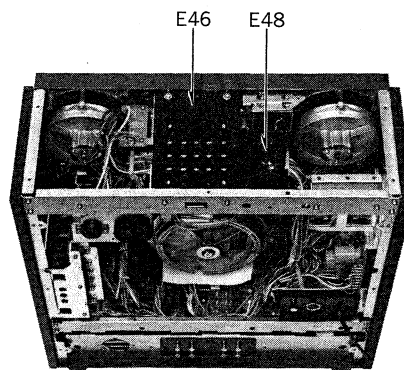
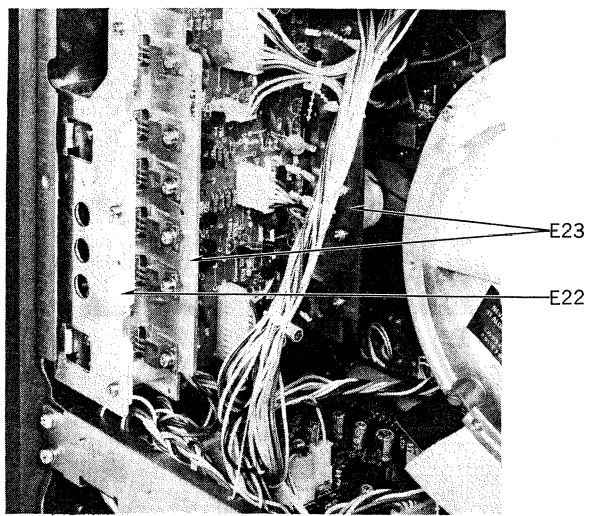
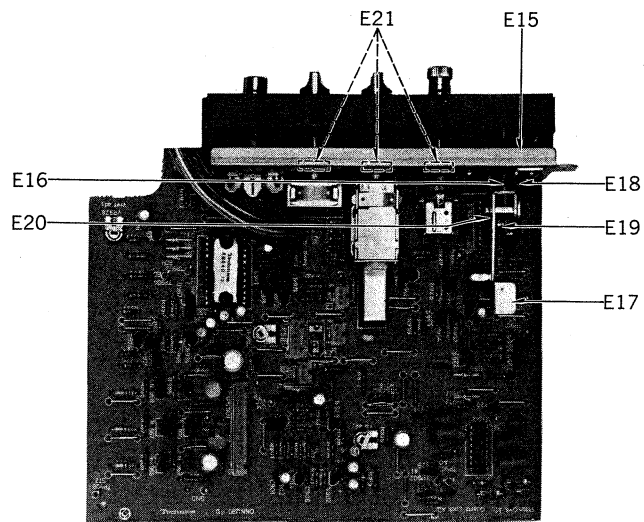
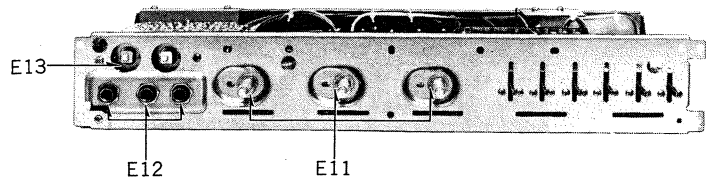


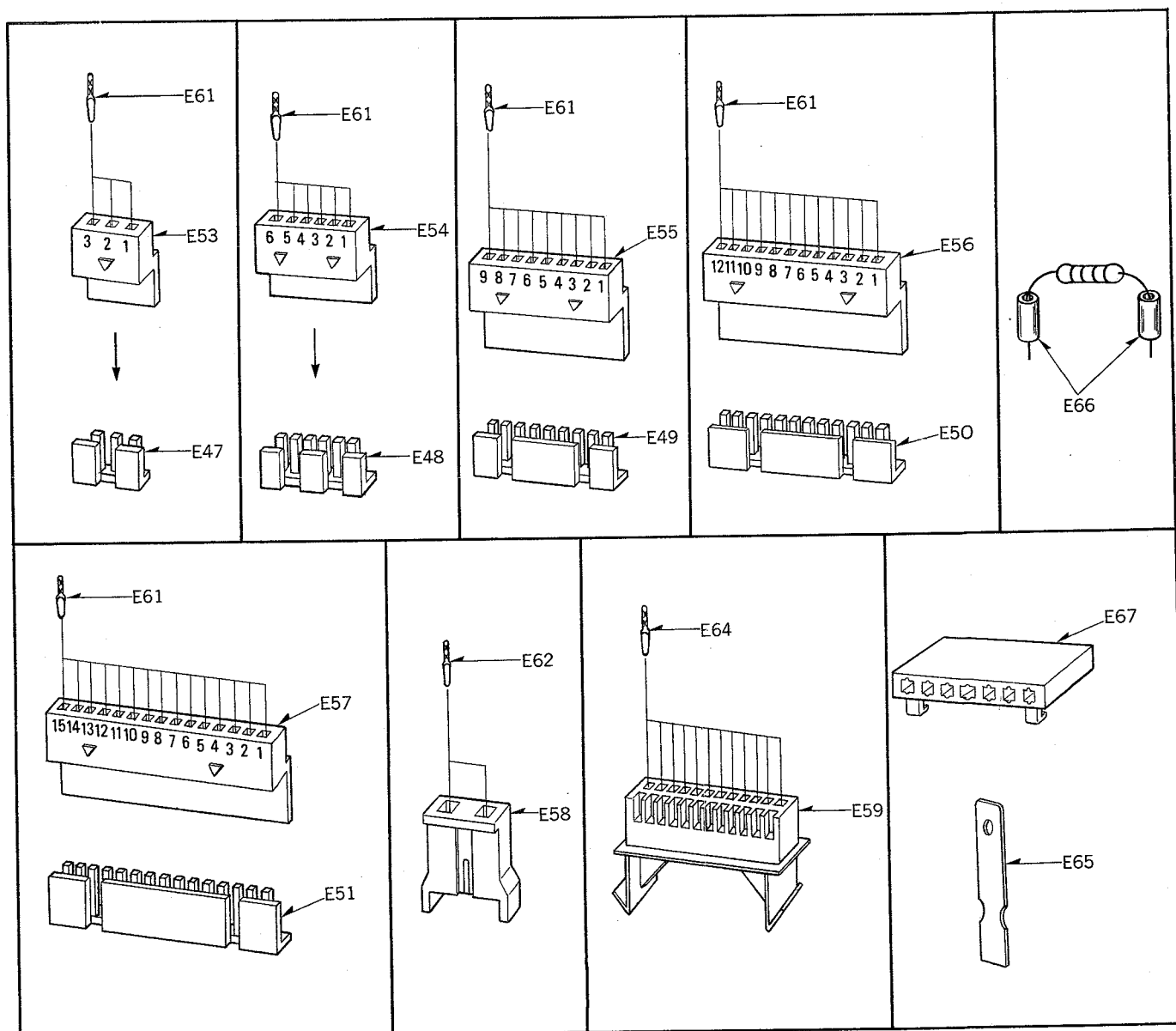
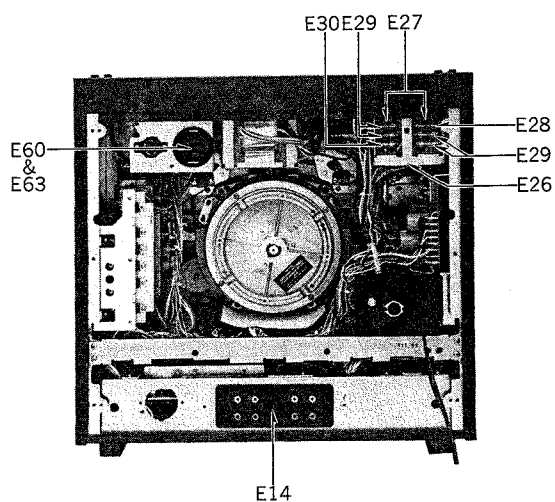
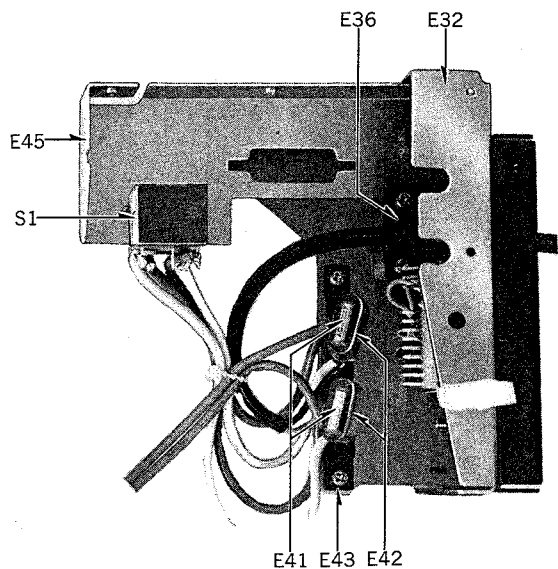
CABINET PARTS



ELECTRICAL PARTS LOCATION







Service Manual

Original

Open Deck

RS-1700

Vol. 2

Information:

The RS-1700 Service Manual Vol. 2 is provided for the purposes of measurements and adjustments. Use Vol. 2 together with Vol. 1. The measuring and adjusting methods of RS-1700 are almost the same as those of RS-1500US. Common items are summed up into a list to simplify the manual. So, for details, refer to the RS-1500US Service Manual.



**FOR MEASURE-
MENTS AND
ADJUSTMENTS**

RS-1500U MECHANISM SERIES

Specifications (Catalog specifications for sales)

Operation: Automatic reverse
Track system: 4-track 2-channel recording, playback, erasure on both way
Heads: 6 heads system
2-record/erasure combination head and 2-playback head
Motors: 3 direct-drive motors system
Capstan: Quartz control phase-locked DC brushless servo direct-drive motor
Reel table: 2-tape tension controlled DC brushless direct-drive motor
Reel size: 13 cm to 26.5 cm (5" to 10-1/2") outside diameter
Tape speed: 38 cm/s, 19 cm/s and 9.5 cm/s (15 ips, 7-1/2 ips and 3-3/4 ips) (recording and playback)
Wow and flutter: 38 cm/s (15 ips); 0.018% (WRMS), $\pm 0.035\%$ (Peak DIN)
19 cm/s (7-1/2 ips); 0.03% (WRMS), $\pm 0.06\%$ (Peak DIN)
9.5 cm/s (3-3/4 ips); 0.06% (WRMS), $\pm 0.12\%$ (Peak DIN)
Speed deviation: $\pm 0.1\%$ at 38 cm/s (15 ips)
Speed fluctuation: 0.05% at 38 cm/s (15 ips)
Frequency response: 38 cm/s (15 ips); 30 ~ 30,000 Hz ± 3 dB (rec. level = -10 dB from 0 VU)
19 cm/s (7-1/2 ips); 20 ~ 25,000 Hz ± 3 dB (rec. level = -20 dB from 0 VU)
9.5 cm/s (3-3/4 ips); 20 ~ 15,000 Hz ± 3 dB (rec. level = -20 dB from 0 VU)
Signal-to-noise ratio: Weighted (ASA-A curve) 1 kHz (3% THD) (185 nWb/m + 6 dB)
Recording level: 38 cm/s (15 ips); 68 dB 62 dB
19 cm/s (7-1/2 ips); 68 dB 62 dB
9.5 cm/s (3-3/4 ips); 67 dB 60 dB
Distortion (THD): Measured via tape at 400 Hz (at any speed)
Less than 0.8% (0 VU)
Less than 2.0% (185 nWb/m + 6 dB)
Channel separation: Better than 50 dB
Erasing ratio: Better than 65 dB (rec. level = +10 dB at 1 kHz)
Pitch control: $\pm 6\%$ (recording and playback)
Time counter accuracy: $\pm 1\%$ at 38 cm/s (15 ips)
Fast winding time: 150 sec. for 762 m (1.5 mil, 2500 feet) tape
Auto-reverse sensing: Photoelectric

Auto-stop sensing: Photoelectric, Tension roller switches or Take-up reel table servo control system
Recording bias: 120 kHz
Bias level: BIAS selector at "1" 90%
at "2" 100%
at "3" 110%
Equalization: NAB standard position "2" of "EQ" and "BIAS" selector set for Scotch #207 tape
Recording level calibration: Referenced to 185 nWb/m
Inputs: MIC; Unbalanced phone type jack sensitivity 0.25 mV (-72 dB), input impedance 4.7 K Ω (at 0 VU, Mic. level control at maximum position) 2.5 mV (-52 dB)/4.7 K Ω with 20 dB Mic.
Attenuation switch on. overload margin 55 dB (75 dB with 20 dB Mic. Att.) applicable microphone impedance 400 Ω ~ 10 K Ω
LINE; Unbalanced phono type jack sensitivity 60 mV (-24 dB), input impedance 150 K Ω overload margin = infinity (line input connected to LINE IN level control before pass through the amplifier)
THROUGH OUT; Same as LINE IN (connected in parallel to LINE IN)
Outputs: LINE; 2-pair of unbalanced phone type jack output level 0.55 V at 0 VU (output level control at "8")
0.775 V or more at output level control maximum output impedance less than 3 K Ω load impedance 22 K Ω over
HEADPHONE; Stereo phone type jack output level 80 mV at 0.55 V line output load impedance 8 Ω
Power requirements: AC 110/125/220/240 V, 50/60 Hz
DC 24 V, 4.9 A peak (with optional battery adaptor RP-086)
Power consumption: 160 W
Weight: 25.7 kg, (56 lbs 9 oz)
Dimensions (W x H x D): 45.6 cm x 44.6 cm x 25.8 cm (18" x 17-1/2" x 10-1/8")

Specifications based on use of Technics RT-10B218 (Scotch #207) tape.
Specifications are subject to change without notice.

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

2505

I. TEST PREPARATION AND TEST INSTRUMENTS

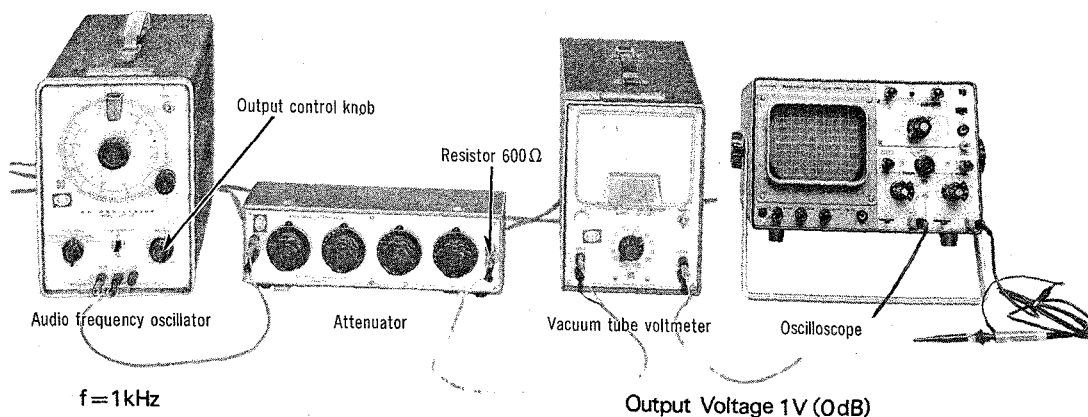
1. Prepare test instruments which are equivalent in accuracy to those shown below.
2. The test instruments should be inspected and corrected by specialists once every 6 months, because a long period of use without maintenance may increase errors in indication.
3. Warm-up the test instruments for 30 minutes and the set to be measured for 10 minutes before taking the measurements. If not, there may arise an error or difference between the initial value and the stabilized value measured after "aging".
4. Test instruments

The instruments required are the same as those for RS-1500US.

Refer to RS-1500US Service Manual Vol. 2 P6—P8.

II. MEASUREMENT CONDITIONS

1. Standard measurement conditions
 - * Ambient temperature: 10—30°C (50—86°F)
 - * Ambient humidity: 30—90% RH
 - * Power voltage accuracy: $\pm 3\%$
2. Position of tape recorder
 - * When measuring, place the unit under test in a horizontal position.
3. Oscillator output voltage adjustment
 - * Connect the equipments as shown in the following and adjust the oscillator output control for 1 V ($f = 1$ kHz) through the attenuator while keeping the attenuator at 0 dB.
 - * When supplying a signal to the tape recorder amplifier, adjust the input level using the attenuator.



III. TEST TAPE

Test tape life

The more frequently the test tape is used, the more the tape characteristics will deteriorate (e.g. lowering of recorded level, worsening of frequency response particularly in high-frequency range, and an increase in wow due to tape elongation) until measured values become unreliable. Even in such a case when a tape is not used, but stored, for a long period of time, tape shows deterioration in performance because of self damagenetization due to storage conditions, etc.

Please refer to the tape life specification and take care not to use a tape longer than its rated life when servicing.

Frequency of use: Not more than 20 times for each tape length.

Storage period: Not more than 60 months.

* Test tape

PARTS NO.	PARTS NAME	SPECIFICATIONS	REMARKS
QZZOF380EX	Standard recording level, azimuth and frequency response tape		<ul style="list-style-type: none"> Tape speed: 38 cm/s Full track: 400 Hz 0 dB, 20 kHz—31.5 Hz -10 dB
QZZOF190EX	Standard recording level, azimuth and frequency response tape		<ul style="list-style-type: none"> Tape speed: 19 cm/s Full track: 400 Hz, 0 dB 16 kHz—31.5 Hz -10 dB
QZZOW380EX	Wow and tape-speed tape		<ul style="list-style-type: none"> Tape speed: 38 cm/s Full track: 8 (min) 3 kHz 0 dB
QZZOW190EX	Wow and tape-speed tape		<ul style="list-style-type: none"> Tape speed: 19 cm/s Full track: 8 (min) 3 kHz 0 dB
QZZORA218	Reference blank tape		<ul style="list-style-type: none"> Unrecorded tape (550m)

MEASUREMENT AND ADJUSTMENT

RS-1700

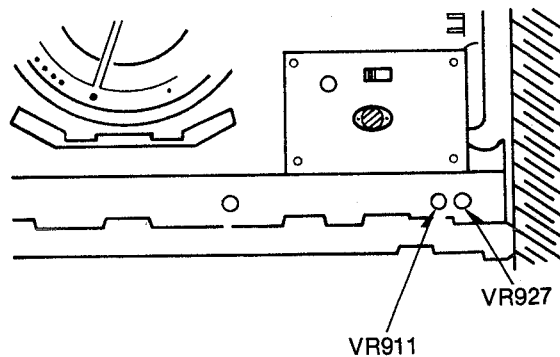
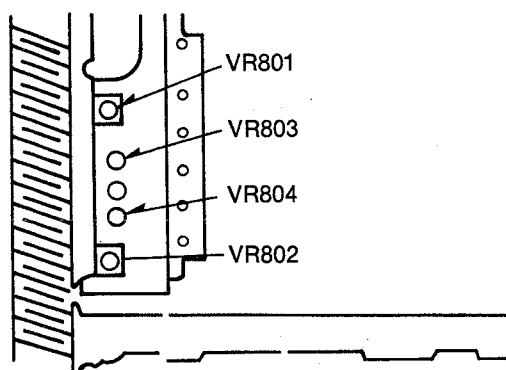
For measurement and adjustment method, there is no great difference from that for Model RS-1500US. Therefore please refer to the Service Manual Vol. 2 of RS-1500US, RS-1506US.

Item	Specification	Measurement Point	Adjustment Part	Remarks												
<div>Mechanism Section</div> <div>Please refer to Service Manual Vol. 2 (P2—P20) of RS-1500US, RS-1506US.</div>																
Pressure Roller position	Symmetrical left and right with relation to the Capstan	<div></div>	Screw (A) and (B) (Refer to fig. 3 in the Vol. 2 of RS-1500US)													
Cue lever	Same as RS-1500US															
Pressure or Pressure Roller	900 ± 100 gr	<div></div>	Position of P. Roller Plunger													
Stopper Position	Same as RS-1500US															
Height of Pressure Roller	Same as RS-1500US															
Braks	Stronger direction: 470 ± 70 gr Weaker direction: 140 ± 25 gr	<div></div>	Brake plunger	Specified with 115 mm of diameter reel.												
Tension Roller height	Same as RS-1500US															
Reel Table height																
Tape Guide	Refer to page 12 of this book.															
Tape Tension	<div>Takeup torque: 65 ± 5 gr Bake tension: 75 ± 5 gr</div> <div>FWD mode Tape speed: 19 cm / s</div> <table><tr><td>Check point</td><td>I_T</td><td>I_S</td></tr><tr><td>with 10" reel tape</td><td>3.8 V</td><td>3.2 V</td></tr><tr><td>with 7" reel tape</td><td>2.45 V</td><td>1.9 V</td></tr><tr><td>adjustment part</td><td>VR802</td><td>VR801</td></tr></table>			Check point	I _T	I _S	with 10" reel tape	3.8 V	3.2 V	with 7" reel tape	2.45 V	1.9 V	adjustment part	VR802	VR801	Use a full wound tape I _T : for Takeup I _S : for Back-tension
Check point	I _T	I _S														
with 10" reel tape	3.8 V	3.2 V														
with 7" reel tape	2.45 V	1.9 V														
adjustment part	VR802	VR801														

Item	Specification	Measurement Point	Adjustment Part	Remarks
	REV mode Tape speed: 19 cm/s			I _T : for Back-tension I _S : for Takeup
	Check point	I _S	I _T	
	with 10" reel tape	3.8V	3.2V	
	with 7" reel tape	2.45V	1.9V	
	adjustment part	VR803	VR804	

Adjustment of
Auto-reverse
Detection circuit

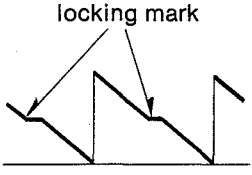
Adjust VR1 so that the wave form of output signal from a photo-transistor
becomed sharp. (Refer to page 14)



Tape speed
and
wow & flutter

Please refer to Serviv Manual Vol. 2 (P19—P20) of RS-1500US, RS-1506US.

Tape Speed (cm/s)	Speed Deviation $\frac{f-3000}{3000} \times 100(\%)$	Speed Fluctuation $\frac{f_1-f_2}{3000} \times 100(\%)$	Wow & Flutter		Pitch Control (%)
			JIS WRMS (%)	DIN W/P-P (%)	
38	±0.10	0.10	0.018	±0.035	±6
19	±0.15	0.15	0.03	±0.08	±6
9.5	±0.20	0.20	0.06	±0.16	±6

Item	Specification	Measurement Point	Adjustment Part	Remarks
1. DC Power voltage	DC 5 ± 0.4 V	TP901	VR929	
2. Standard voltage	DC 0 ± 0.05 V	TP904 and TP905 (Terminal No. 4 and No. 5 of IC966)	VR928	<ul style="list-style-type: none"> • Short circuit between TP902 and TP903 • Adjust VR928 so that voltage between TP904 and TP905 becomes 0 ± 0.005 V
3. Quartz lock position		TP906	VR911	<ul style="list-style-type: none"> • Refer to page 13 for details • Adjust so that locking mark position at the center.
4. Position detecting signal output	1.5Vp-p	TP907	VR966	
5. Pitch control	$\pm 6(\%)$		VR927	<ul style="list-style-type: none"> • Refer to page 14 for details • Pitch control: ON and set at center.
Playback Heads Refer to Service Manual Vol. 2 of RS-1500US, RS-1506US.				
Playback Head Please refer to Service Manual Vol. 2 (P22—P24) of RS-1500US, RS-1506US and page 15 of this book.				
Playback Amplifier Please refer to Service Manual Vol. 2 (P25—P27) of RS-1500US, RS-1506US.				
Standard Playback Output	0.55 V	Line out jack	VR110 (L-CH) VR210 (R-CH)	<ul style="list-style-type: none"> • Use test tape • 8 position of output control

Item	Specification	Measurement Point	Adjustment Part	Remarks
Playback Frequency Response			VR106 (L-CH) VR206 (R-CH)	<ul style="list-style-type: none"> Adjustment should be done at high frequency range with 38 cm/s tape speed
<p>38 cm/s tape speed</p> <p>19 cm/s tape speed</p> <p>9.5 cm/s tape speed</p> <p>Note: Dotted line show the frequency response of REV mode.</p>				
Playback S/N ratio	48dB or more (38/19cm/s) 46dB or more (9.5cm/s)	Line out jack		Unweighted
Maximum Playback Output	0.775 V	Line out jack		With output control at max. position.
Record Amplifier				
Please refer to Service Manual Vol. 2 (P28—P34) of RS-1500US, RS-1506US.				
Standard recording level	Mic in: - 72 ± 2dB Line in: - 24 ± 3dB	Line out jack		Standard of output 0.55 V at "8" position of output control

Item	Specification	Measurement Point	Adjustment Part	Remarks
Line input level adjustment	$-24 \pm 3 \text{ dB}$	Line out jack	VR101 (L-CH) VR201 (R-CH)	
Level meter (Source position)	0 VU	Level meter	VR108 (L-CH) VR208 (R-CH)	
Bias Osc. frequency	$124 \pm 5 \text{ kHz}$	$I_{ER}(TP3)$	Soldering or unsoldering C542 or C543	
Erase current	$75 \pm 10 \text{ mA}$ 0	$I_{ER}(TP3)$	VR501	<ul style="list-style-type: none"> Erase current = $\frac{\text{Value read on VTVM (V)}}{1 \text{ ohm (R599)}}$ Value indicated should be for each erase head. When there is difference among value for FWD L-CH and R-CH, and REV L-CH and R-CH, adjustment should be made so that the lowest one becomes within the standard.
Oscillation Circuit Adjustment <ol style="list-style-type: none"> Connect VTVM to test point I_B (TP2) and I_{ER} (TP3). Set the unit in the recording mode. Adjust respectively the adjustment coils (as shown below) so that the output at the test point will be maximum. <ul style="list-style-type: none"> Lch recording bias current L502 Rch recording bias current L504 Erase current L506 				
Bias current leakage-1	1 V or less	TP4 (L-CH) TP5 (R-CH)	L102 (L-CH) L202 (L-CH)	
Bias current Leakage-2	3 mV or less	Line out jack	L103 (L-CH) L203 (R-CH)	
Record Head and Erase Head <p>Please refer to the Service Manual Vol. 2 (P36—P37) of RS-1500US, RS-1506US except overall frequency response.</p>				

Item	Specification	Measurement Point	Adjustment Part	Remarks
<div> <div>Overall frequency response</div> <div>Overall Specification</div> <div> <p>Eq. selector: Position 2 Bias selector: Position 2 Line input: - 34dB (38cm/s) - 44dB (19/9.5)</p> </div> </div>				
Adjustment parts: FWD direction: 38cm/s tape speed VR504 (L-CH) VR510 (R-CH) 19cm/s tape speed VR503 & L101 (L-CH) VR509 & L201 (R-CH) 9.5 cm/s tape speed VR502 (L-CH) VR508 (R-CH)		REV direction: 38cm/s tape speed VR507 (L-CH) VR513 (R-CH) 19cm/s tape speed VR506 (L-CH) VR512 (R-CH) 9.5cm/s tape speed VR505 (L-CH) VR511 (R-CH)		
		Note: <ul style="list-style-type: none"> Adjustment parts (variable resistors) beginning with VR are actually used bias current change. L101 and L201 adjust the REC equalization. 		

Adjustment Procedure:

A) FWD direction, 19 cm/s tape speed

1. 400 Hz, – 44 dB of input to Line In jacks.
2. Adjust VR503 (L-CH) and VR509 (R-CH) for maximum Line output.
3. Change the input frequency to 10 kHz, and again adjust VR503 and VR509 so that the Line output becomes the same value as for 400 Hz in step 2.
4. Again change the input frequency to 25 kHz, and adjust L101 (L-CH) and L202 (R-CL) so that the Line output becomes 2 dB lower than that of 400 Hz in step 2 above.
5. Then confirm the overall frequency response for other frequencies is in the standard.

B) FWD direction, 38 cm/s tape speed

1. 400 Hz, – 44 dB of input to Line In jacks.
2. Adjust VR504 (L-CH) and VR510 (R-CH) for the maximum Line output.
3. Change the input frequency to 26 kHz, and adjust again VR504 and VR510 so that the Line output becomes 1 dB lower than that of 400 Hz in step 2.
4. Then change the input frequency to 30 kHz and confirm that the Line output is within – 2 dB compared with output of 400 Hz in step 2 above.
5. After above, confirm that the overall frequency response for other frequencies is in the standard.

C) FWD direction, 9.5 cm/s tape speed

1. 400 Hz, – 44 dB of input to Line In jacks.
2. Adjust VR502 (L-CH) and VR508 (R-CH) for the maximum Line output.
3. Change the input frequency to 14 kHz, and adjust again VR502 and VR508 so that the Line output becomes within – 2 dB compared with the output of 400 Hz in step 2 above.
4. Then confirm the overall frequency response for each frequency.

D) REV direction, 38 cm/s tape speed

Adjustment method is the same as in FWD direction but adjustment should be done by using VR507 (L-CH) and VR513 (R-CH).

E) REV direction, 19 cm/s tape speed

1. 400 Hz, – 44 dB of input to Line In jacks.
2. Adjust VR506 (L-CH) and (R-CH) for the maximum Line output.
3. And change the input frequency to 25 kHz, and adjust VR506 and VR512 so that the Line output becomes within – 2 dB with compared to the output of 400 Hz in step 2 above.
4. Then confirm that overall frequency response for each frequency is within the standard.

F) REV direction, 9.5 cm/s tape speed

Adjustment method is the same way as in FWD direction but adjustment parts are VR505 (L-CH) and VR511 (R-CH).

Item	Specification	Measurement Point	Adjustment Part	Remarks
Bias current	Bias selector: 2 38cm/s: around 2.9mA 19cm/s: around 2.7mA 9.5cm/s: around 2.3mA For position 1 of Bias selector: 10% less than that with position 2 of Bias selector. For position 3 of Bias selector: 10% more than with position 2 of Bias selector.	I _B (TP2)	Refer to overall frequency response adjustment.	
Recording equalization				

Compensation values depending upon frequencies.

Tape speed: 38cm/s, Eq. position: 2

Frequency (Hz)	31.5	100	400	6.3 K	20 K
Value (dB)	3 ± 2	1 ± 2	0	- 2 ± 2	2 ± 3

Tape speed: 19cm/s, Eq. position: 2

Frequency (Hz)	400	6.3 K	16 K
Value (dB)	0	3 ± 3	12 ± 4

Tape speed: 9.5cm/s, Eq. position: 2

Frequency (Hz)	400	6.3 K	12.5 K
Value (dB)	0	4 ± 3	15 ± 4

Compensation value depending upon EQ. positions.

Tape speed: 38cm/s, Frequency: 20kHz

Eq. position	1	2	3
Value (dB)	+ 3 ± 1	0	- 3 ± 1

Tape speed: 19cm/s, Frequency: 16kHz

Eq. position	1	2	3
Value (dB)	3 ± 2	0	- 3 ± 2

Tape speed: 9.5cm/s, Frequency: 12.5kHz

Position	1	2	3
Value (dB)	4 ± 3	0	- 4 ± 3

Item	Specification	Measurement Point	Adjustment Part	Remarks
Overall gain	$0.55\text{ V} \pm 1\text{ dB}$ ($0.775\text{ V} \pm 1\text{ dB}$)	Line out jack	FWD direction VR104 (L-CH) VR204 (R-CH) REV direction VR105 (L-CH) VR205 (R-CH)	<ul style="list-style-type: none"> Line in: -24 dB Output level control "8" position (Max position)
Recording current	$180\text{ }\mu\text{A}$	IB (TP2)	_____	Remove fuse on oscillation circuit board to stop the bias oscillation.
Level meter (for playback)	0VU	On meter	VR109 (L-CH) VR209 (R-CH)	Monitor: Tape position
Overall S/N ratio	38cm/s: 46dB or more 19cm/s: 46dB or more 9.5cm/s: 44dB or more	Line out jack	_____	<ul style="list-style-type: none"> Frequency 1 kHz
Erase ratio	1 kHz: 70dB or more 100Hz: 60dB or more	Line out jack	_____	Tape speed: 38cm/s Input: -14 dB
Overall distortion	0.8% or less	Line out jack	_____	

1. MECHANISM

The items, methods and specifications for measurements and adjustments are basically the same as for RS-1500US. Therefore, only these items which differ between RS-1700 and RS-1500US are mentioned in the following.

[1] Tape Transport

Thread 150% blank tape through the unit and run the tape forward and reverse at a speed of 19cm/sec. Then make the following adjustments so that the tape is not curled by the tape guide tension roller.

[A] Tension Rollers Height Adjustment.

[B] Reel Tables Height Adjustment.

[C] Tape Guide Adjustment.

Since the adjustments in (A) and (B) are the same as for RS-1500US, refer to RS-1500US Service Manual Vol. 2.

1) Tape Guide Adjustment

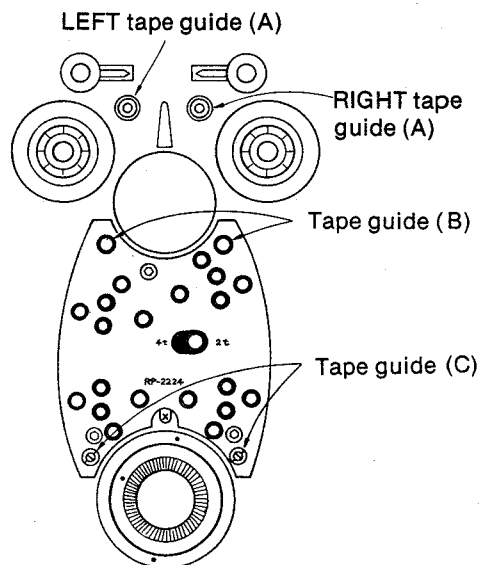
Tape guide (B) is fixed, and the tape transport can be adjusted with tape guide (A) and tape guide (C).

a) Make the adjustment so that the tape runs at the center of tape guide (B) without being curled.

- * LEFT tape guide (A) in forward mode.
- * RIGHT tape guide (A) in reverse mode.

b) Tape guide (C)

Adjust tape guide (C) so that the tape is not curled at tape guide (C) in forward and reverse modes.



c) The factors of tape travel variation can be summarized as follows:

Forward mode

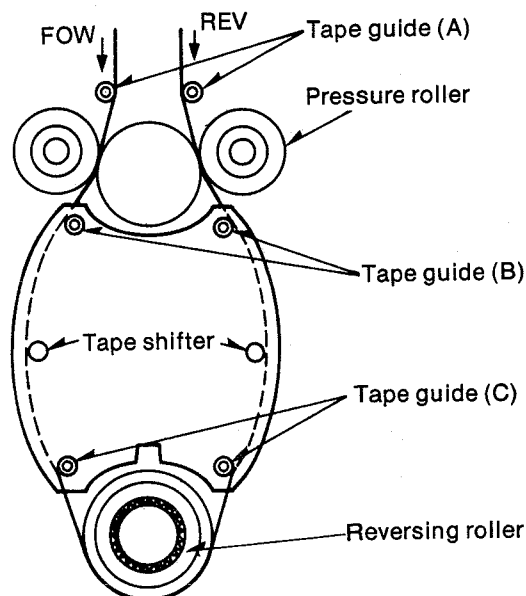
- Left tension roller height.
- Height of tape guide (A).
- Tilt and contact of reverse playback head.
- Tilt of reversing roller (when tape is curled at tape guide (C)).

Reverse mode

- Right tension roller height.
- Height of tape guide (A).
- Tilt and contact of forward playback head.
- Tilt of reversing roller.

FF/REW mode

- Heights of tape guides (A), (B), (C).
- Verticality of tape shifter.



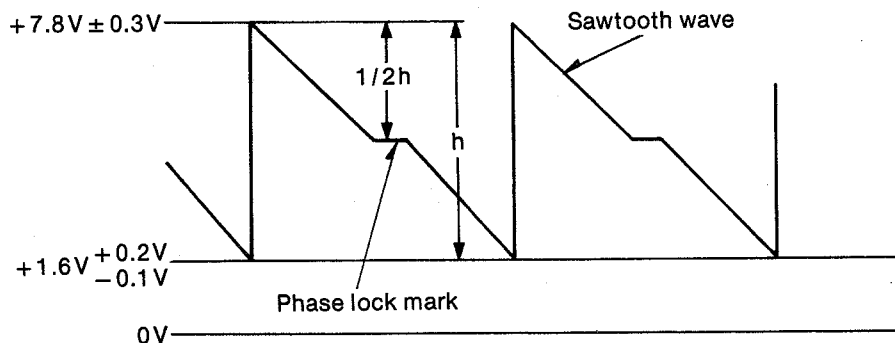
[2] Tape Speed, Wow and Flutter

Since the contents of 1) Tape speed measurement, 2) Tape speed fluctuation measurement, and 3) Wow and flutter measurement are the same as for RS-1500US, refer to RS-1500US Service Manual Vol. 2. But for pitch control adjustment and capstan motor circuit adjustment, RS-1700 differs from RS-1500US as follows:

1) Adjustment of Capstan Motor Circuit

Connect oscilloscope to TP906. (Dual-trace oscilloscope is not needed for RS-1700.)

2. Set AC/DC selector switch of oscilloscope to DC position.
3. Thread 10" or 7" real tape and set tape speed selector to 9.5 cm/sec.
4. Playback the tape (at the middle of tape wound).
5. Make the adjustment so that the output waveform of TP906 is as shown below at VR911.



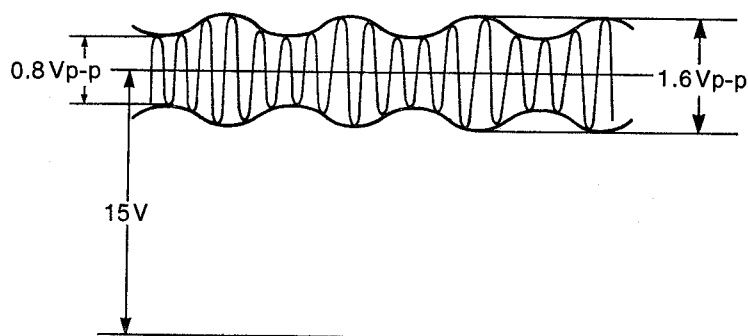
- The phase lock mark is shifted upward when the tape speed is changed to 19cm/sec. and 38cm/sec. If it is stationary, there will be no problem.

2) Pitch Control Adjustment

- Set the pitch control switch to ON, maintaining the connection made in section 1).
- Thread 10" or 7" real tape and set tape speed selector to 9.5cm/sec.
- Adjust VR927 so that the lock mark of sawtooth wave is as stationary as possible (actually the lock mark moves slowly).

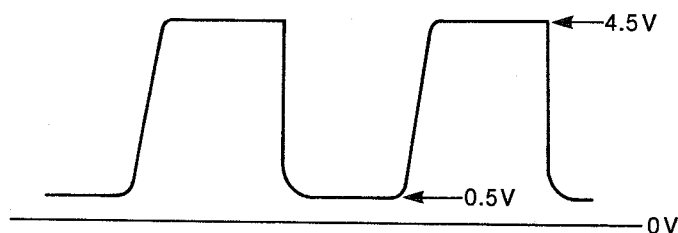
3) Position Detecting Signal Output

- Connect oscilloscope to TP907 (capstan motor control circuit board).
- Set the tape speed to 9.5cm/sec. in playback mode.
- Measure the peak-to-peak voltage of position detecting signal of TP907 with the oscilloscope.
- If the measured signal voltage is markedly different from the voltage shown below, make the necessary adjustment with VR966.



4) Adjustment of Auto Reverse Detection Circuit

- Retain the tension roller so that shut-off switch (S19, S20) turns ON.
- Set the unit to playback mode without tape threaded. Connect oscilloscope to TP (main control circuit board R89 1.5K), and then check the waveform.
- Adjust VR1 so that the voltage waveform of TP becomes a sharper square waveform and its amplitude is as shown below.



2. HEAD ADJUSTMENT

The head composition of RS-1700 is different from that of RS-1500US. It is composed of Forward Erase/Record Head, Forward Playback Head, Reverse Frase/Record Head, and Reverse Playback Head. For alignment, however, RS-1700 is basically the same as RS-1500US.

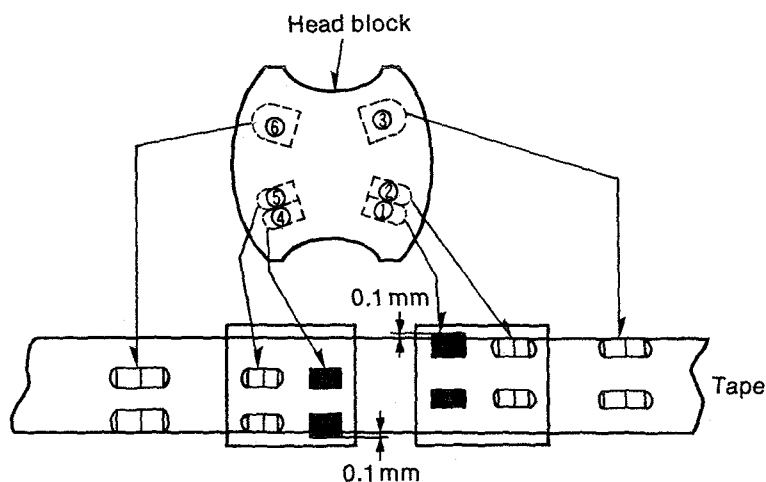
- (1) Playback head adjustment (both forward and reverse).
 - (2) Frase/Record head adjustment (both forward and reverse).
- Regarding (1) and (2), the following adjustments are necessary.

- [A] Head height.
- [B] Tilt.
- [C] Azimuth.
- [D] Contact and tangency.
- [E] Phase.

Since the adjustment methods for (A) and (B) are the same as for RS-1500US, refer to RS-1500US Service Manual Vol. 2 P22—P24, P36—P37.

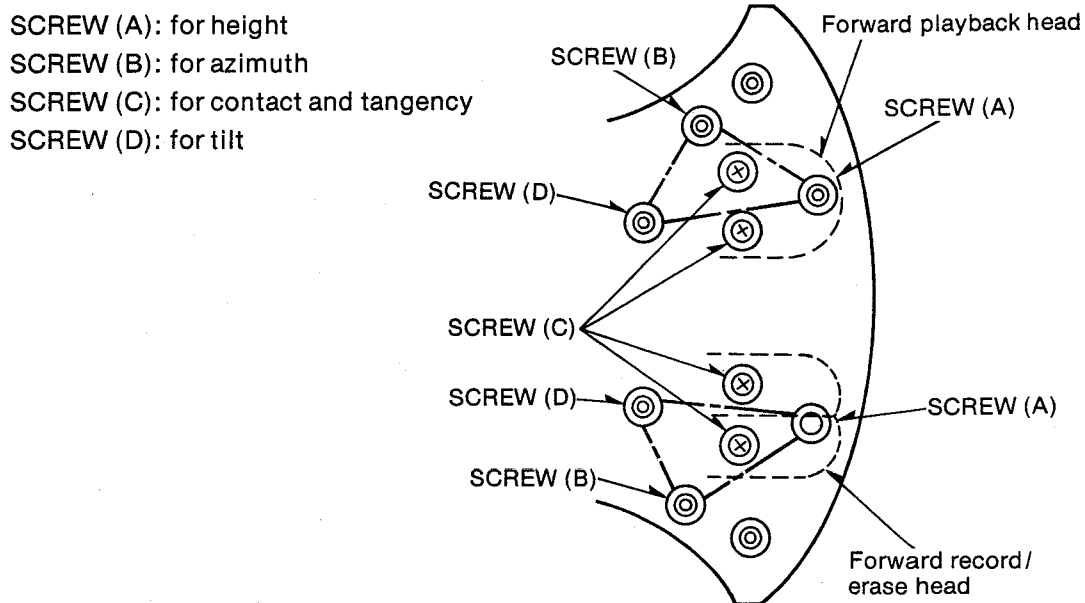
[1] Head Setting

- a) Tape transport must be adjusted and checked before the adjustment of electrical characteristics. But if the tape travel is not normal, carry out the above-stated tape guide adjustment, and then check and adjust the head position; i.e. head height, tilt, tangent and tape contact.
- b) Since the adjustment of each head is the same as for RS-1500US, refer to RS-1500US Service Manual Vol. 2. Incidentally, make the adjustments for RS-1700 in forward and reverse modes.
- c) Head height, and tape touch of Record/Erase head.

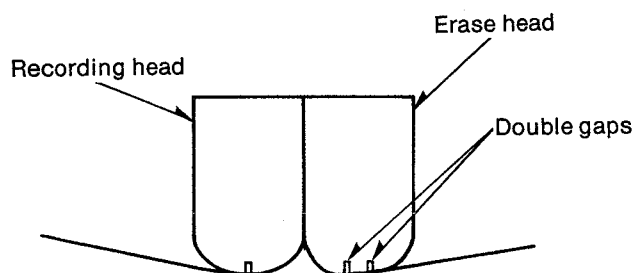


- ① Forward erase head.
- ② Forward record head.
- ③ Forward playback head.
- ④ Reverse erase head.
- ⑤ Reverse record head.
- ⑥ Reverse playback head.

- (1) The height of each head from the tape must be visually checked and then adjusted with head height adjustment screw as shown above.



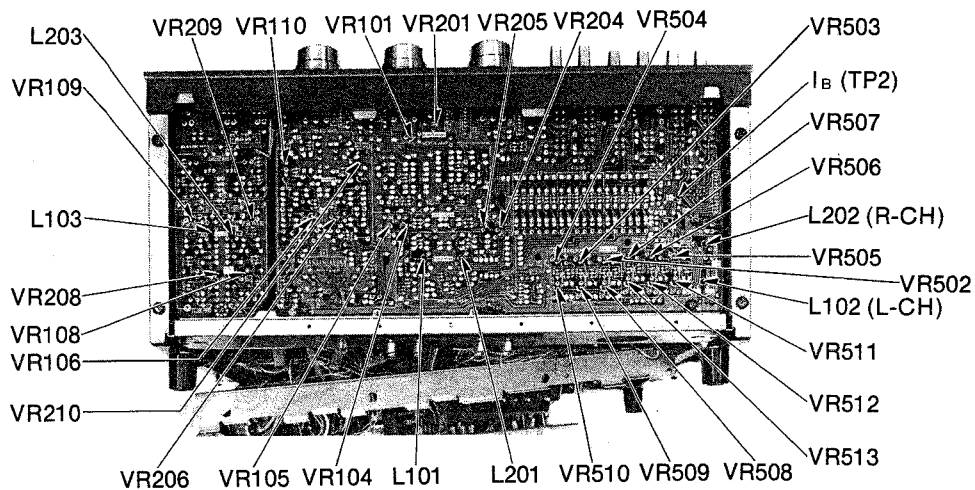
- (2) Tape touch of Record/Erase head.



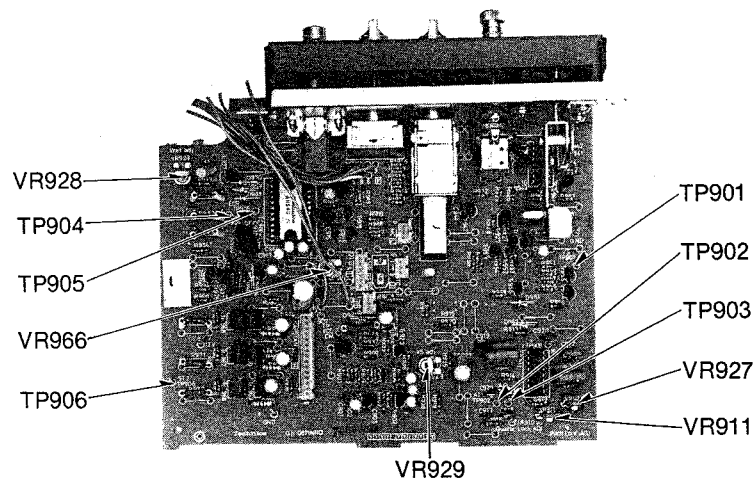
Adjust the Record/Erase head position with head adjustment screw (C) so that record head gap and erase head gaps touch the tape as illustrated above.

ADJUSTMENT PARTS LOCATION

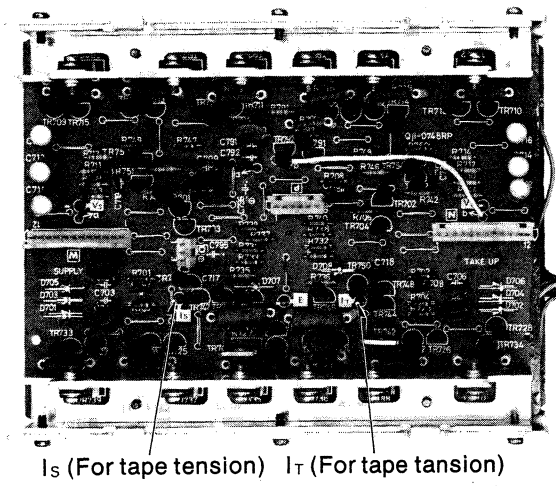
Line-out Headphone/Main Amplifier



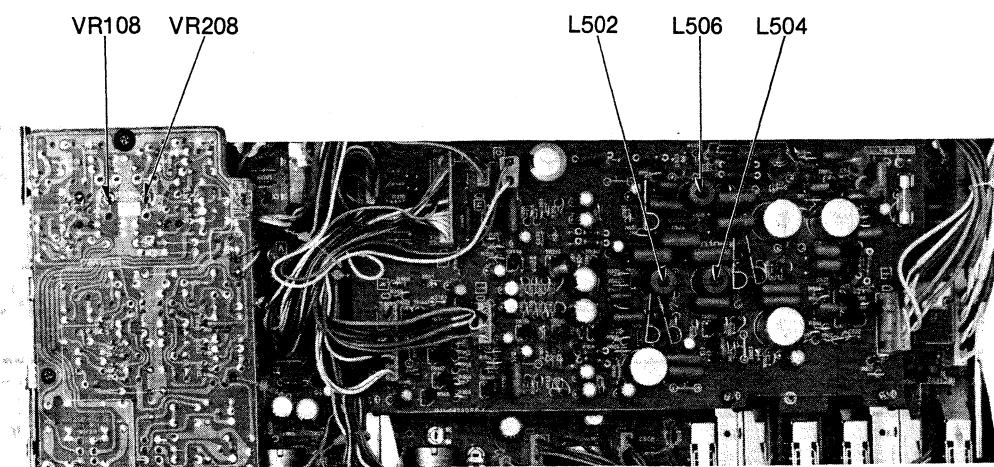
Capstan Motor Control Circuit



Reel Motor Driving Circuit

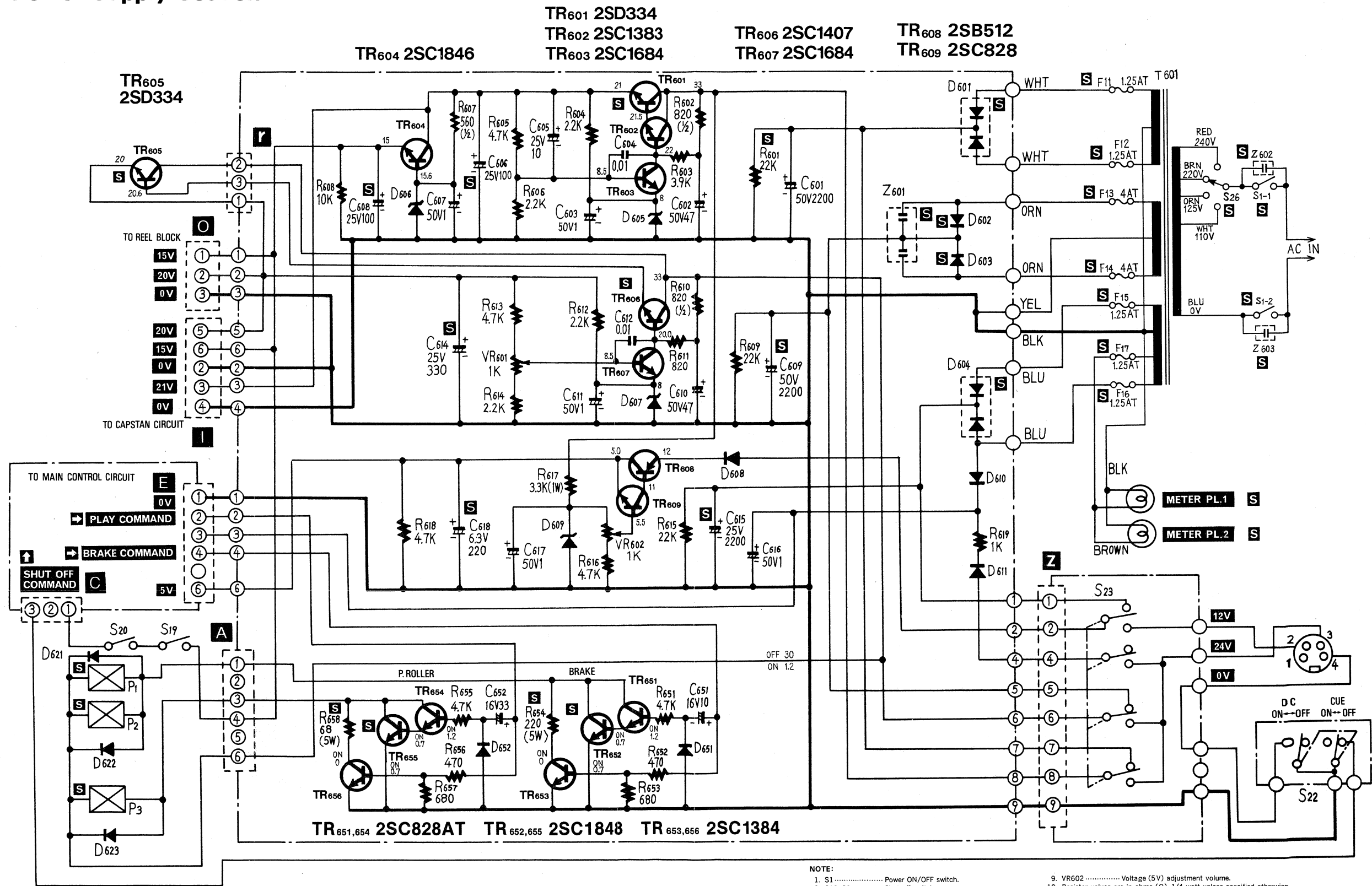


Mic and Meter Amplifier/ Oscillation Circuit



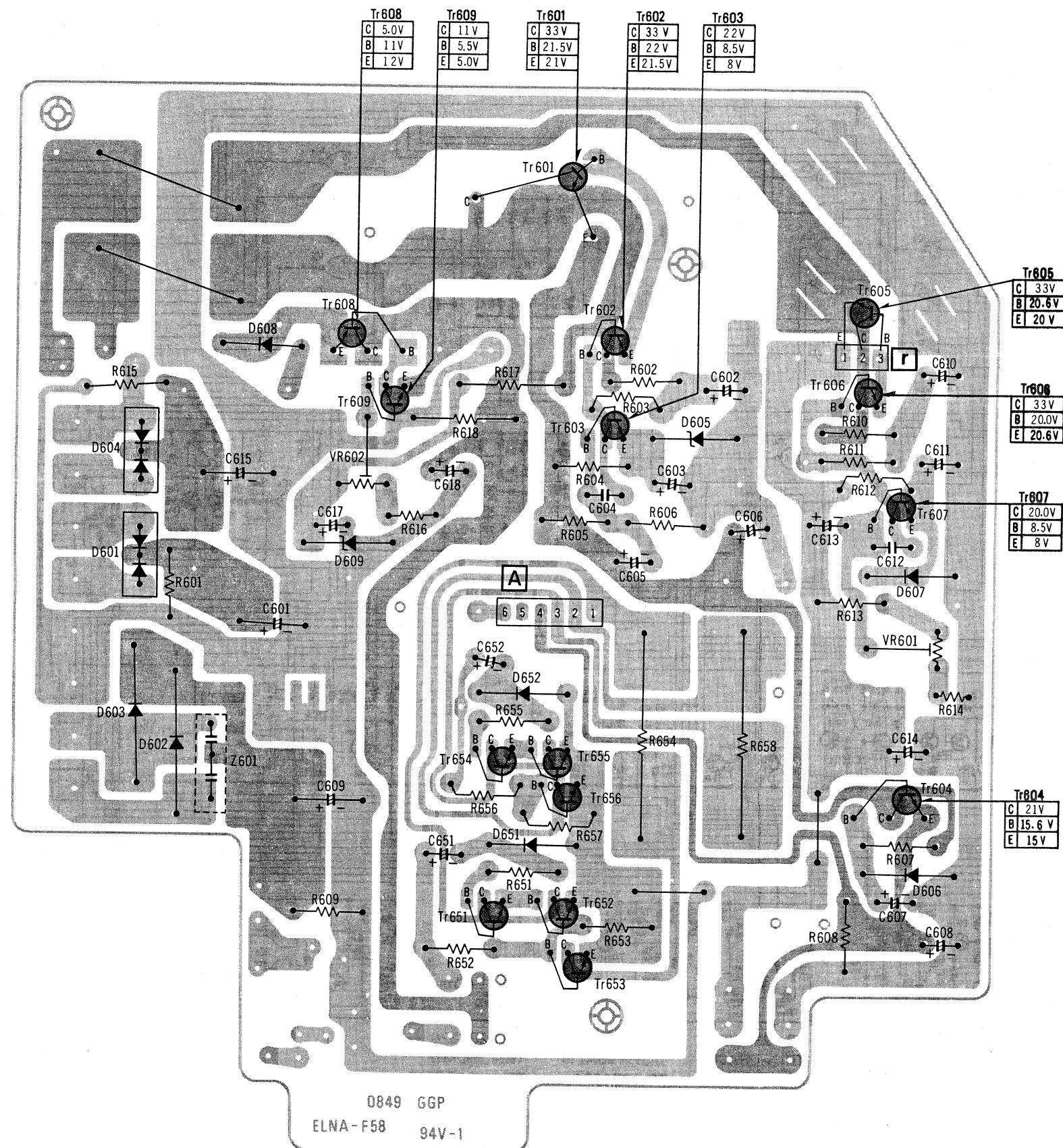
SCHEMATIC DIAGRAM MODEL RS-1700

Power Supply Section



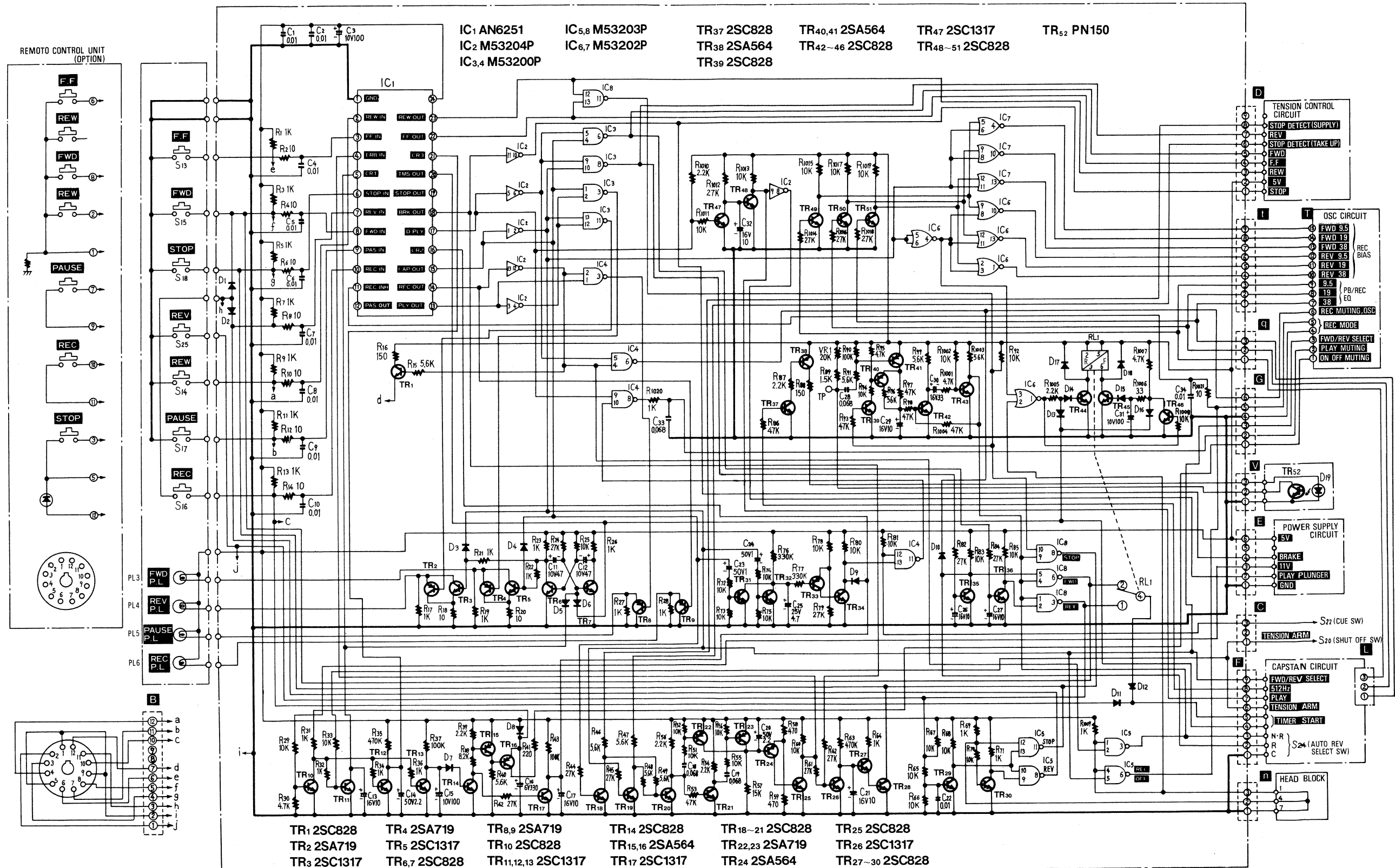
CIRCUIT BOARD

Power Supply



SCHEMATIC DIAGRAM MODEL RS-1700

Main Control Section



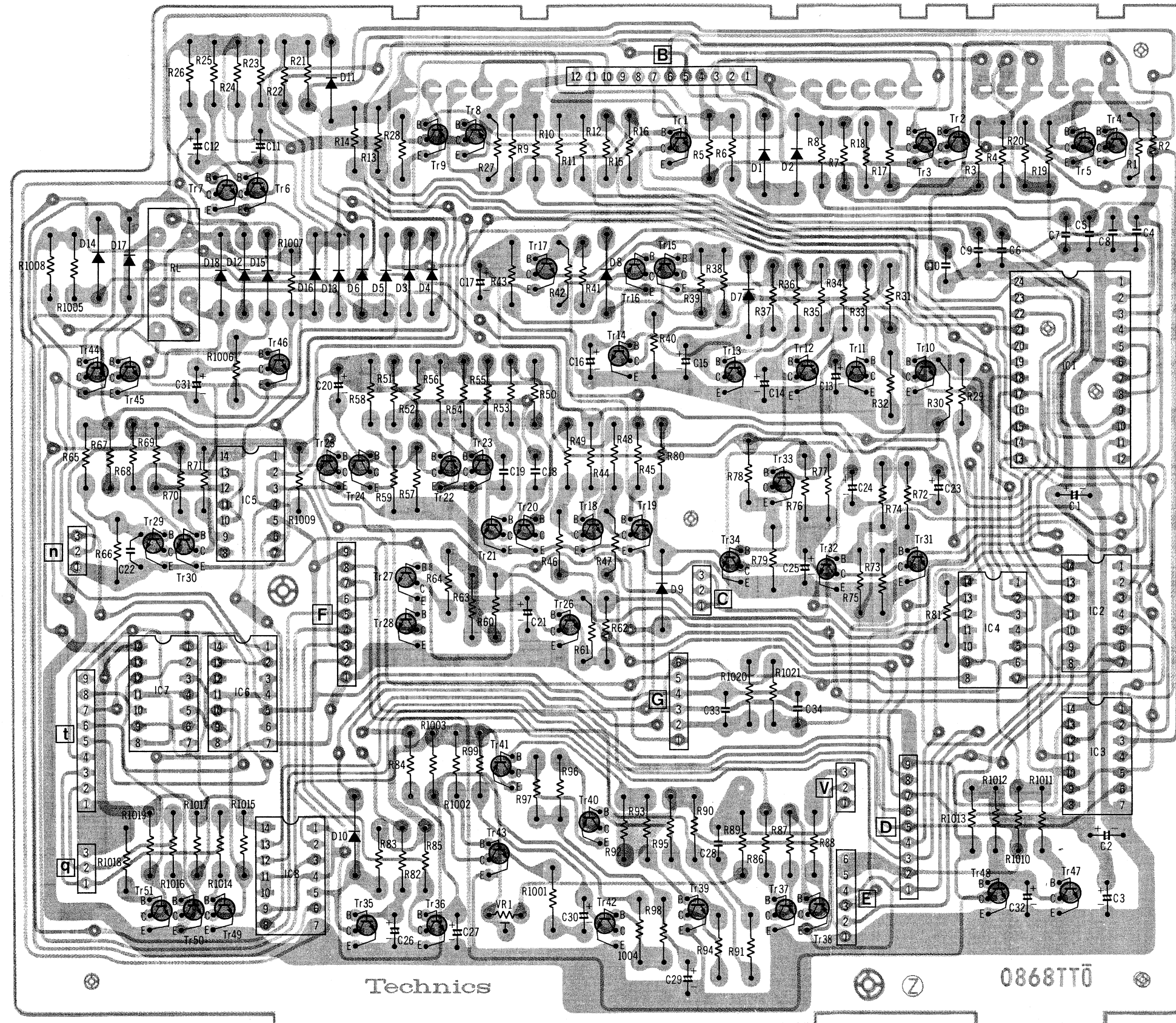
NOTE:

- S13~18, 25.....Control key switch.
- VR1.....Photo transistor adjustment VR.
- RL1.....Forward/reverse select relay.
- Resistor values are in ohms (Ω), 1/4 watt unless specified otherwise.
K=1,000 Ω .

- Capacitor values are in microfarads (μ F) unless specified otherwise.
P=Pico-farads.

CIRCUIT BOARD

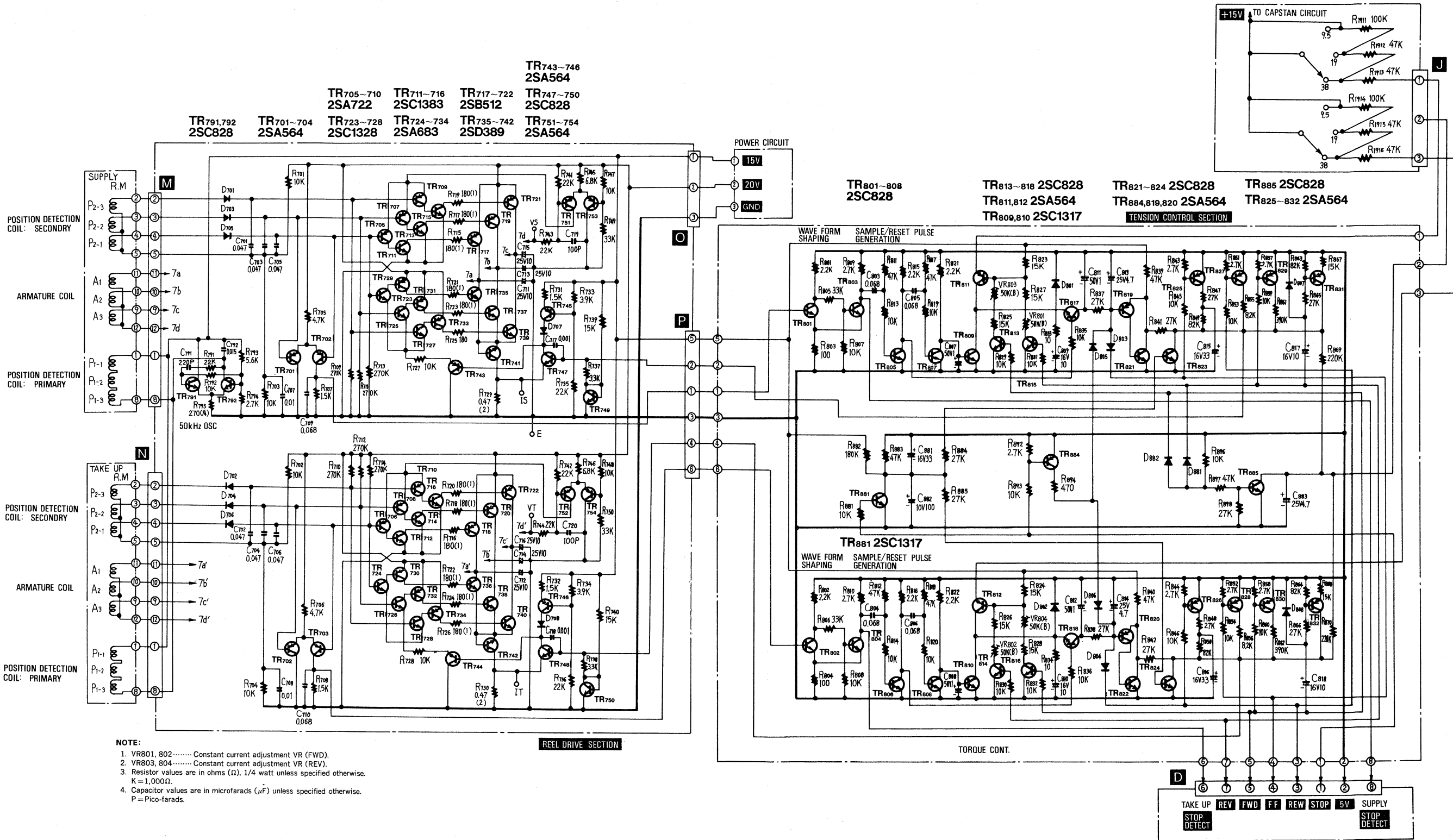
Main Control



NOTE:
The circuit shown in red on the conductor is B circuit.

SCHEMATIC DIAGRAM MODEL RS-1700

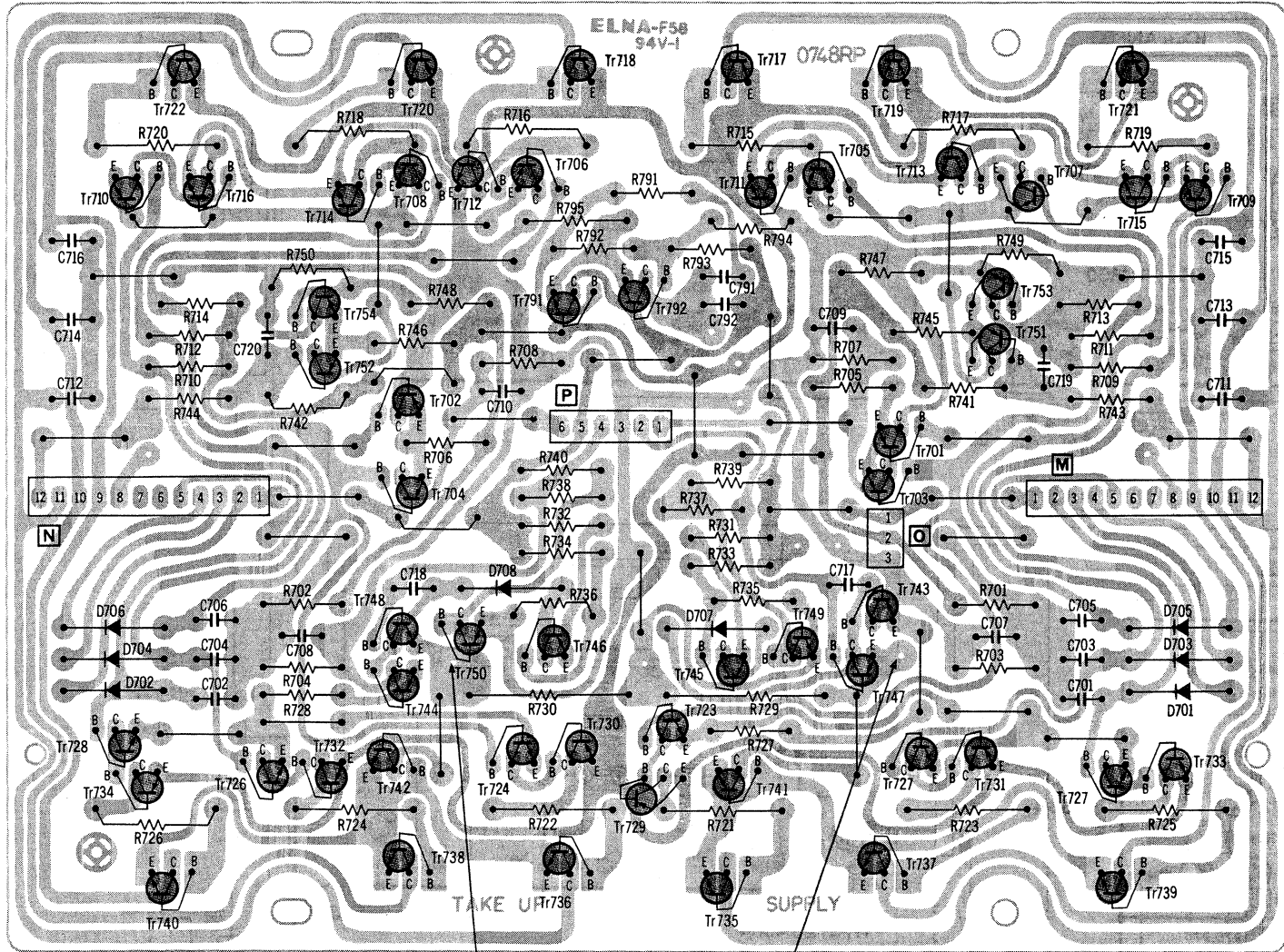
Reel Motor Section



CIRCUIT BOARD

2

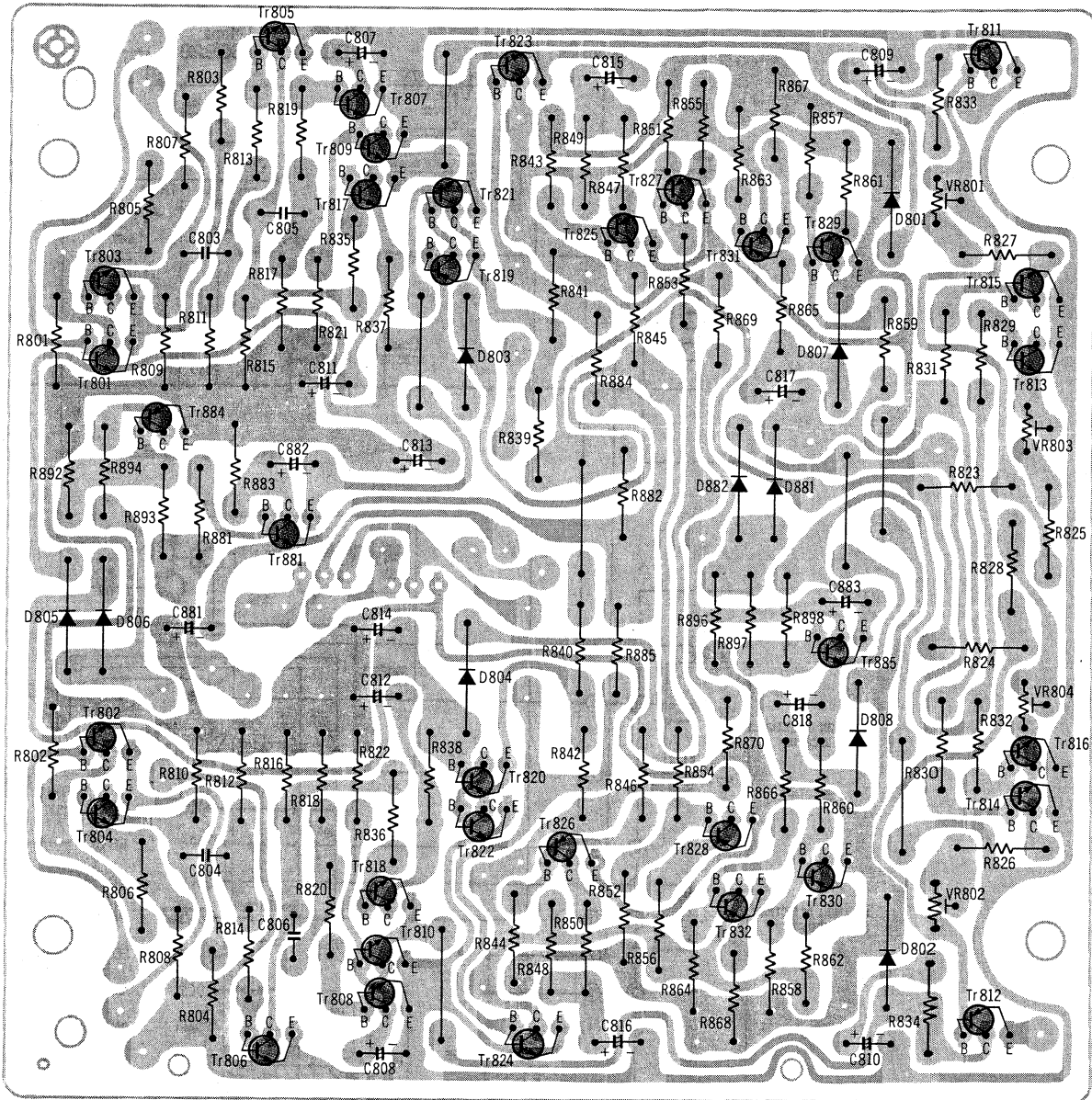
Reel Motor Driving



Ir (For tape tension)

Is (For tape tension)

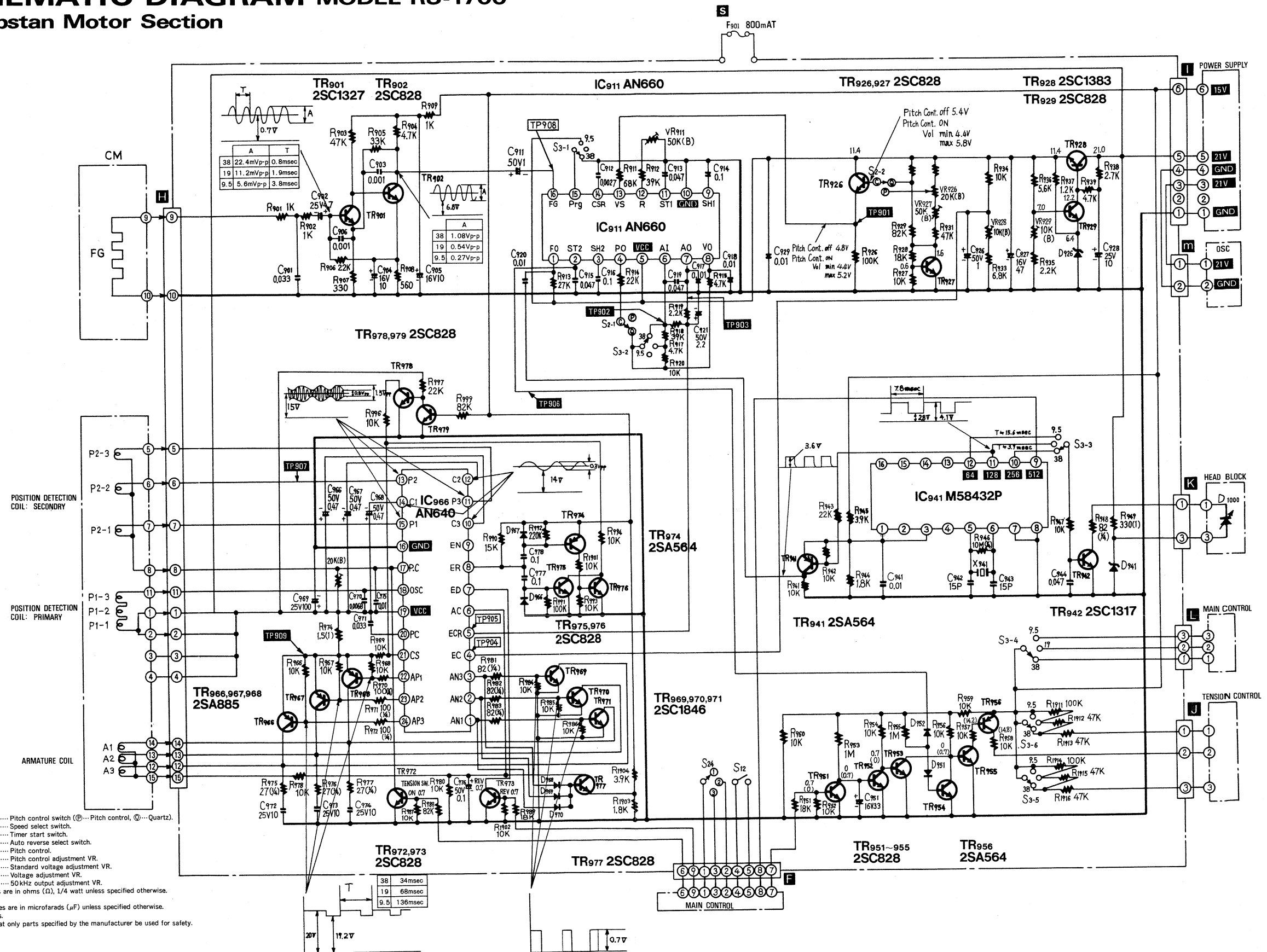
Reel Motor Tension Control



NOTE:
The circuit shown in red on the conductor is B circuit.

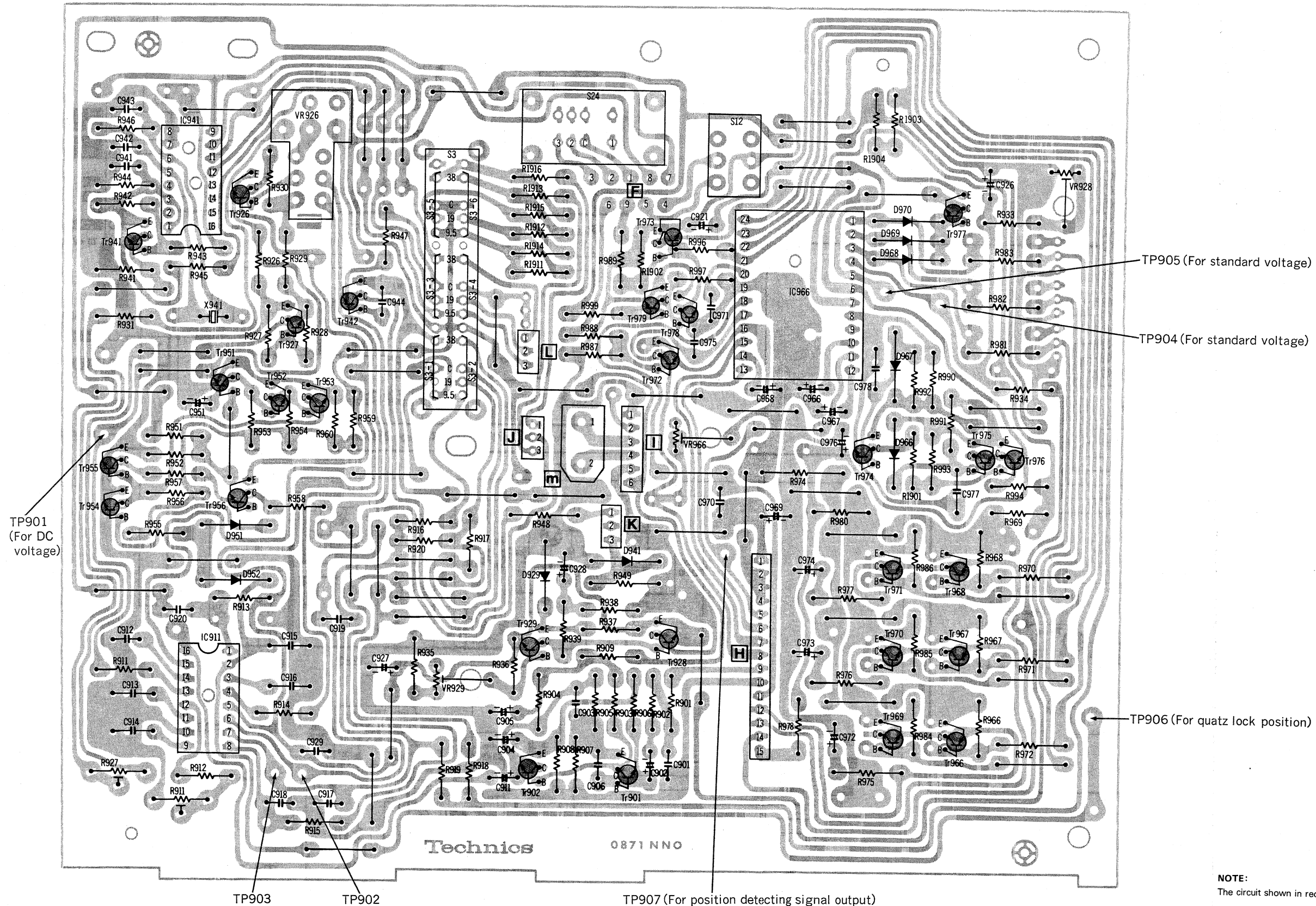
SCHEMATIC DIAGRAM MODEL RS-1700

Capstan Motor Section

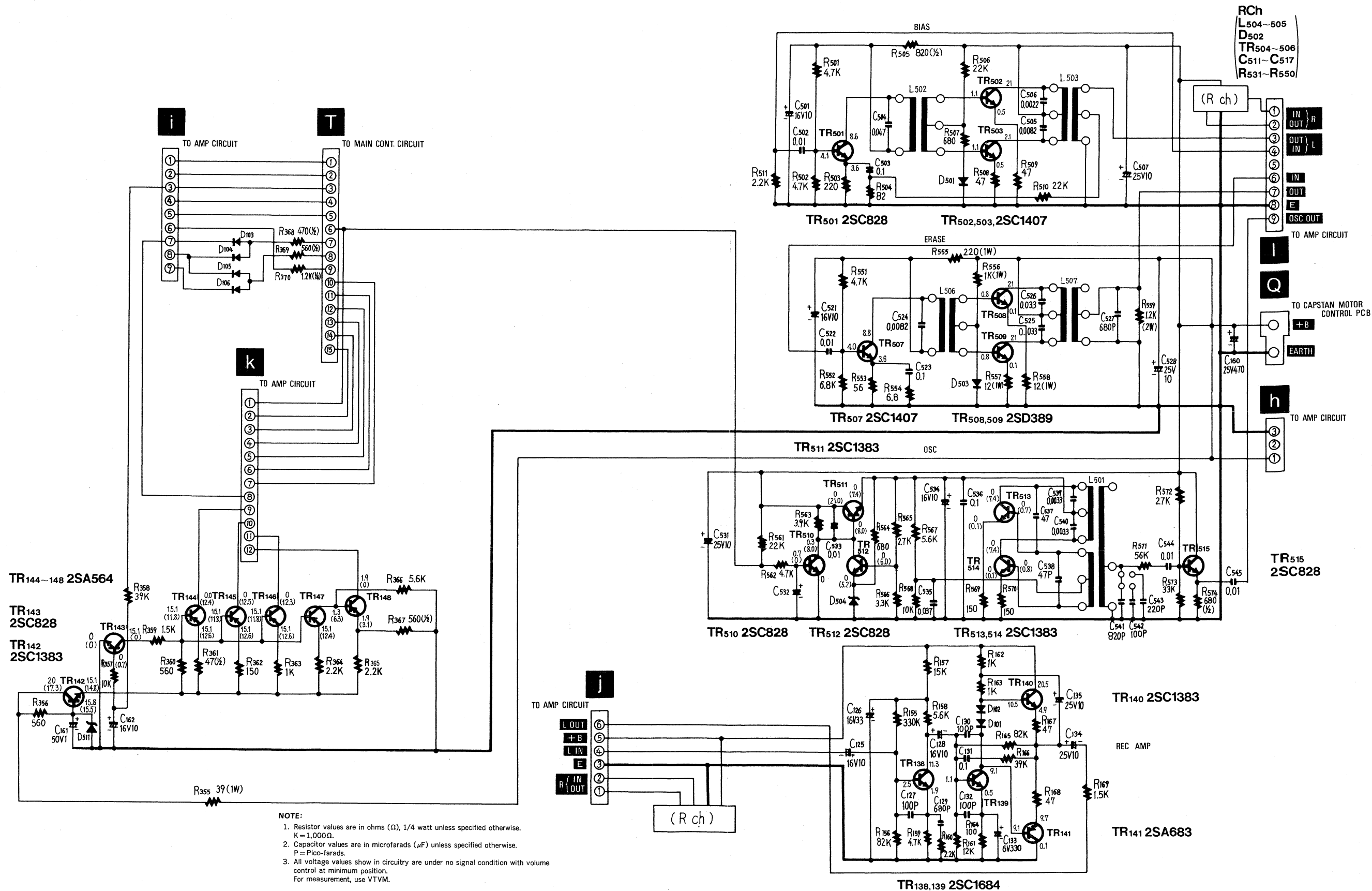


CIRCUIT BOARD

Capstan Motor Control

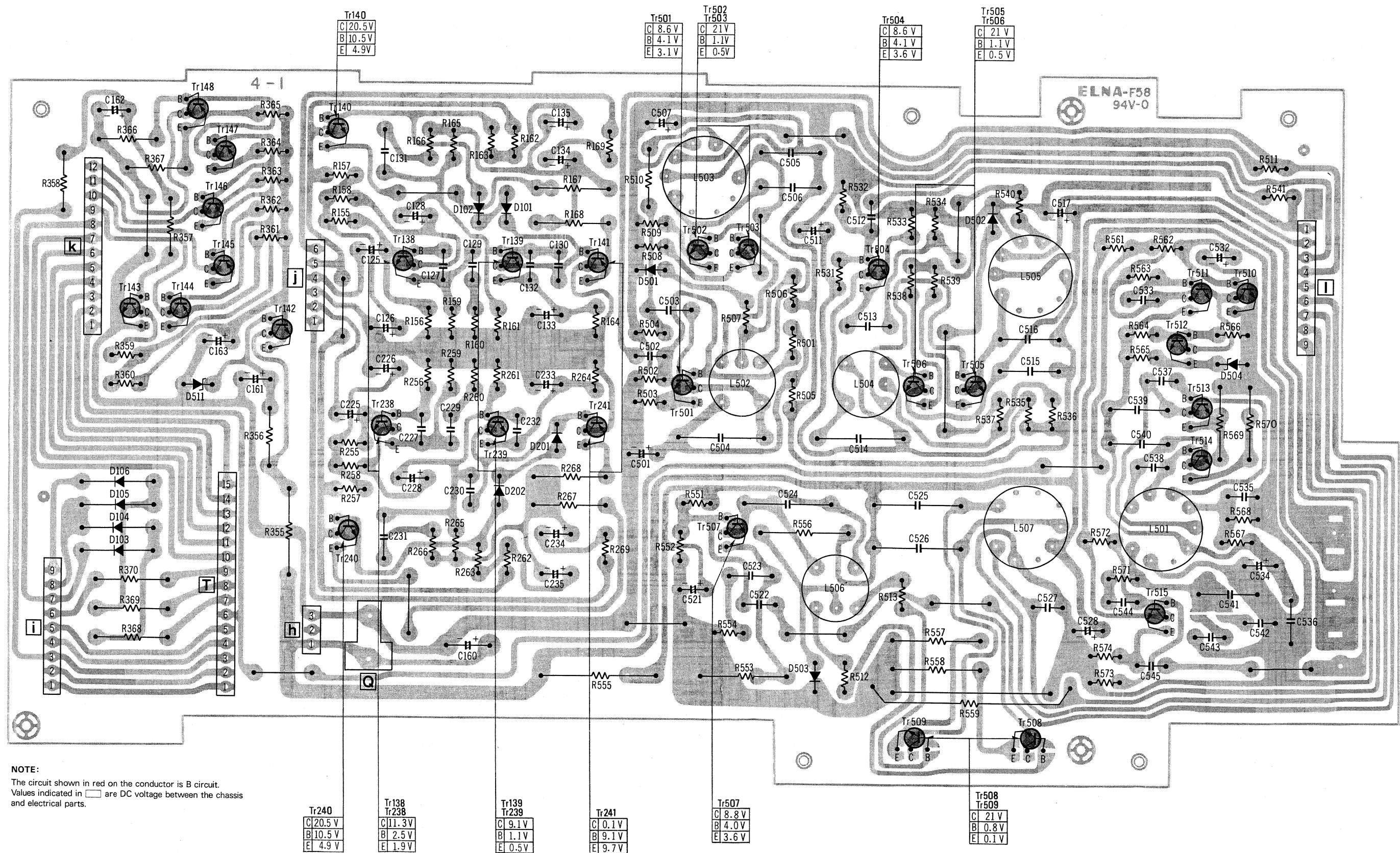


SCHEMATIC DIAGRAM MODEL RS-1700
Oscillation Section



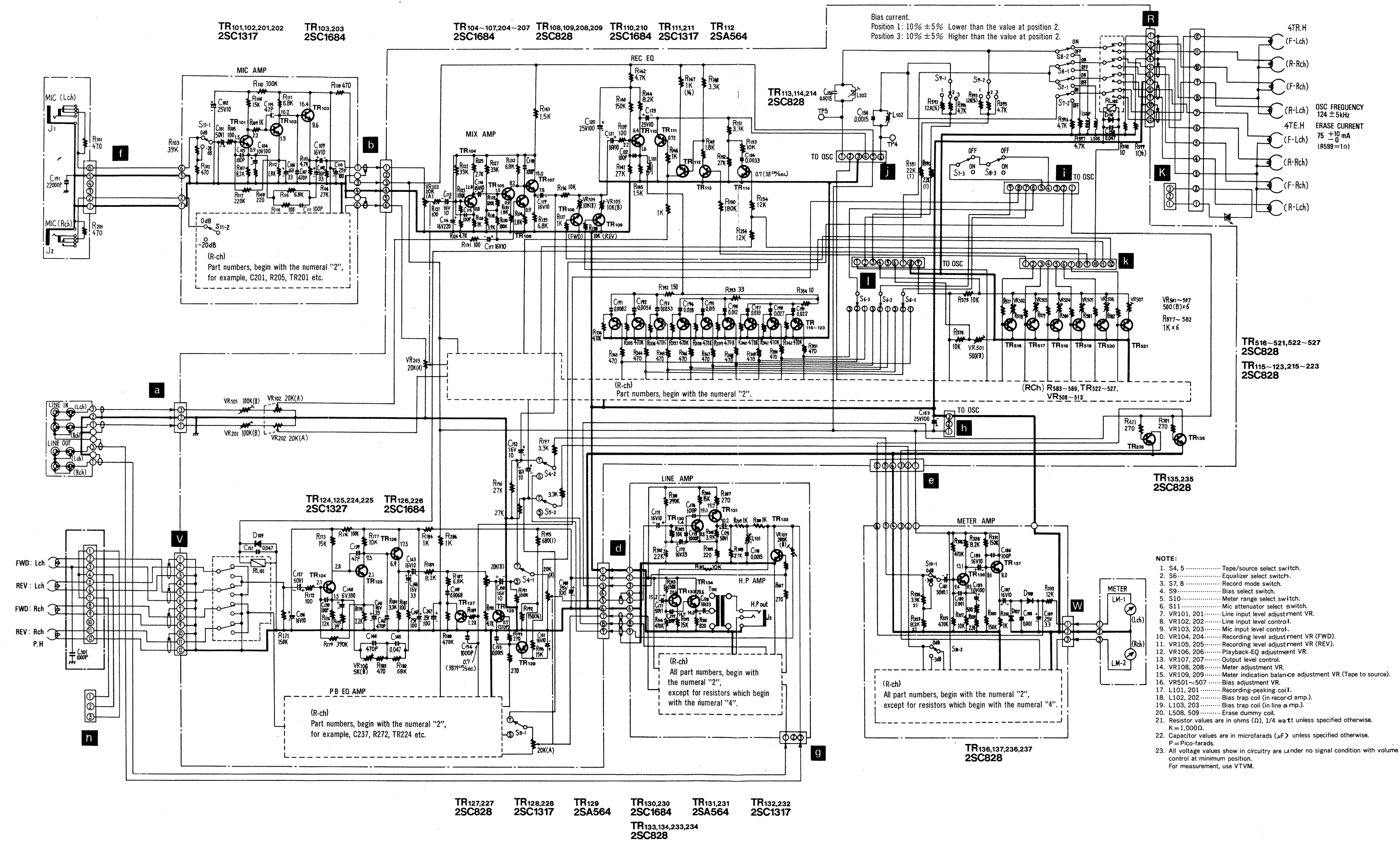
CIRCUIT BOARD

Oscillation

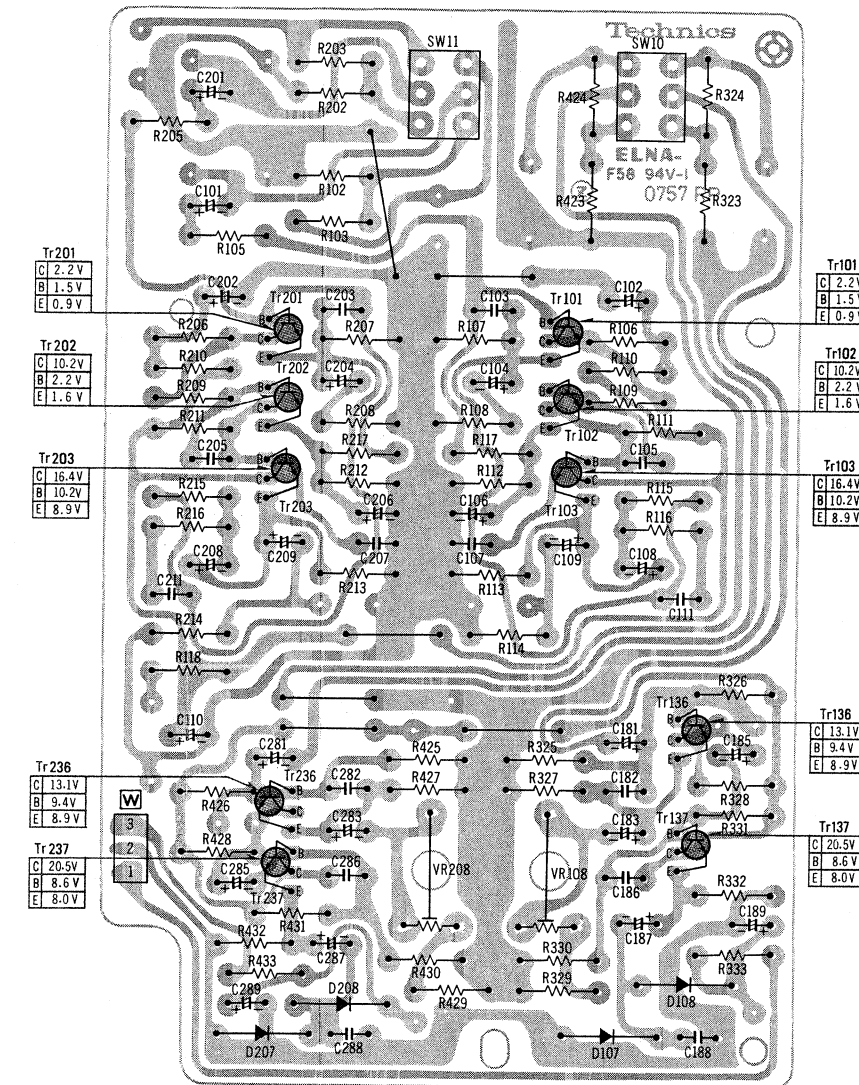
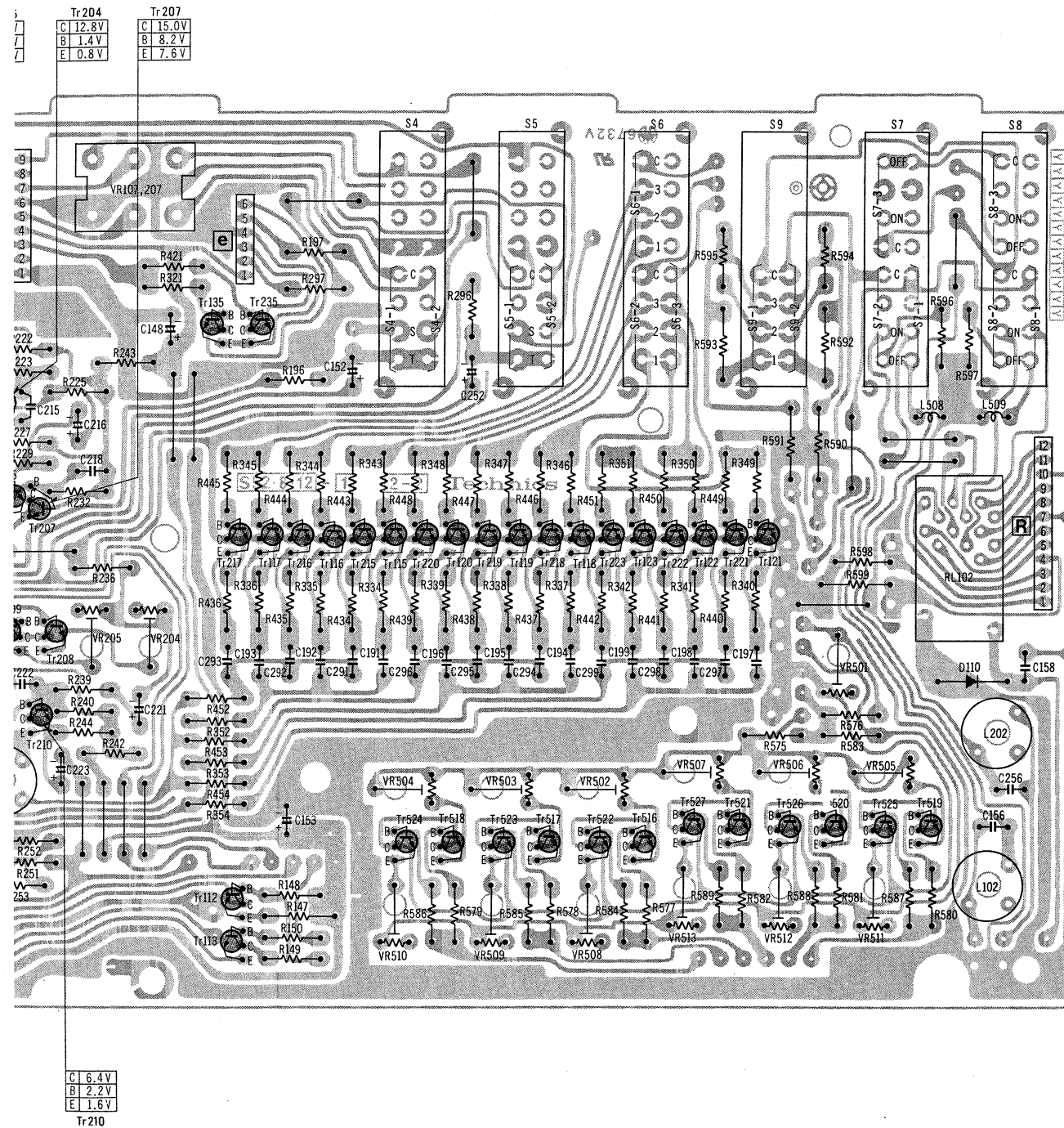


SCHEMATIC DIAGRAM MODEL RS-1700

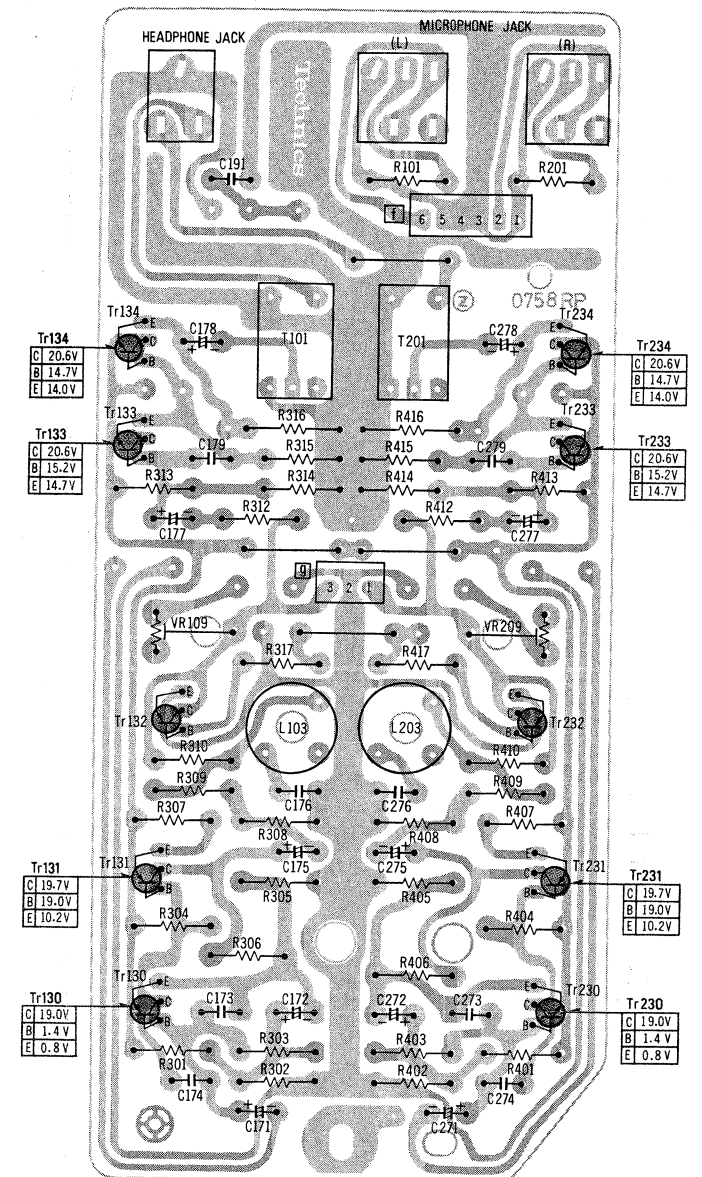
Main Amp Section



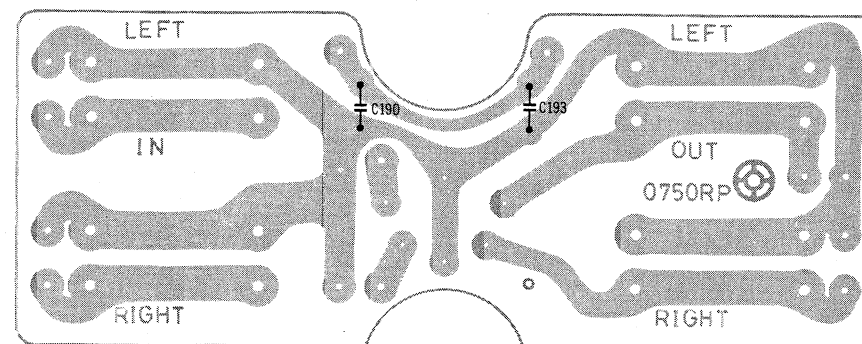
Mic and Meter Amp



Line-out Headphone Amp



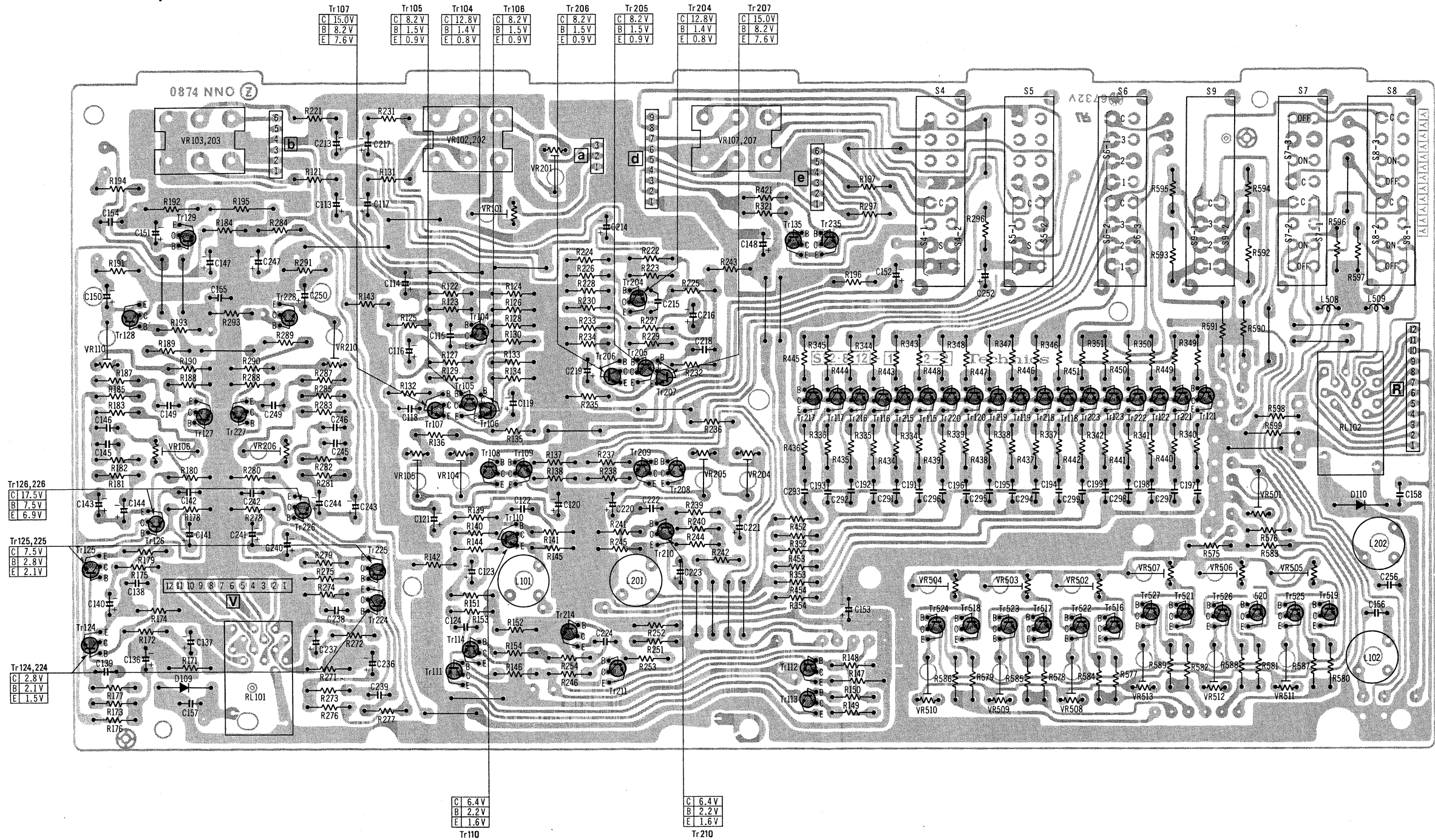
Jack



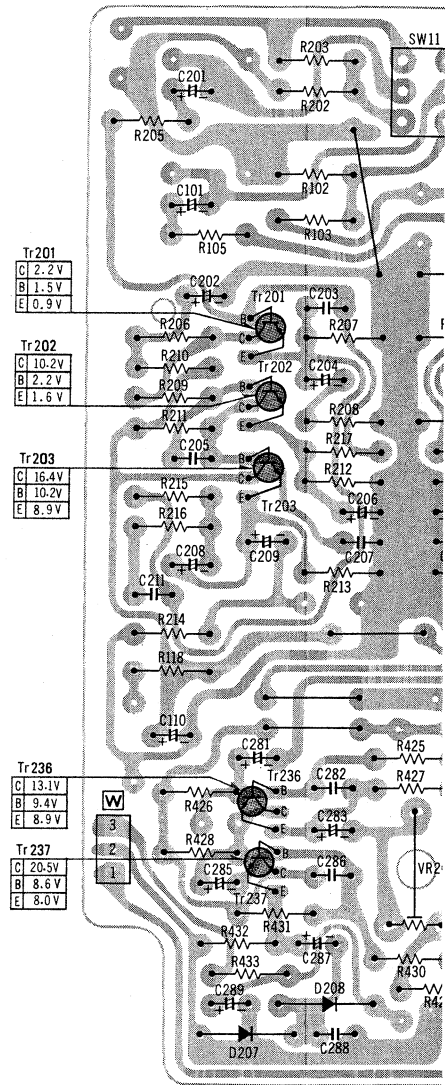
NOTE:
The circuit shown in red on the conductor is B circuit.
Values indicated in are DC voltage between the chassis and electrical parts.

CIRCUIT BOARD

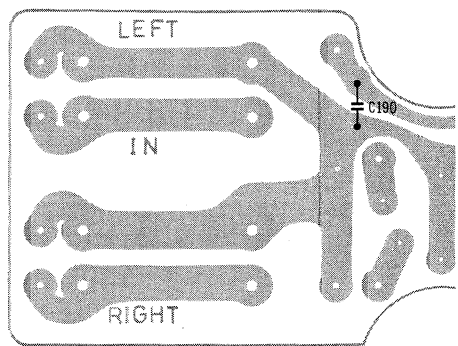
Main Amp




Mic and Meter Amp



Jack



REPLACEMENT PARTS LIST MODEL RS-1700 (Technics)

NOTE:  indicated that only parts specified by the manufacturer be used for safety.

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
MECHANICAL PARTS				
M1	XTN4+10B	Tapping Screw	15	
M2	QXH0273	Function Button Holding Plate Assembly	1	
M3	XUC3FT	Stop Ring	30	
M4	QMN2142	Shaft	1	
M5	QBG1132	Stopper Rubber	1	
M6	XTN3+12B	Tapping Screw	3	
M7	XSN3+6S	Screw	4	
M8	QXB0504	Fast Forward Button Assembly	1	
M9	QXB0502	Forward Playback Button Assembly	1	
M10	QXB0506	Stop Button Assembly	1	
M11	QXB0503	Reverse Playback Button Assembly	1	
M12	QXB0505	Rewind Button Assembly	1	
M13	QMC0050	Collar	1	
M14	QBW2019	Washer	9	
M15	QXB0501	Pause Button Assembly	1	
M16	QXB0500	Record Button Assembly	1	
M17	QML3024	Switch Arm	1	
M18	QXA0608	Counter Holding Plate	1	
M19	QMF1862	Stopper Plate	1	
M20	XTN3+8B	Screw	6	
M21	QBT1601	Slide Plate Spring	1	
M22	QGO1284	Cue Button-1	1	
M23	QDC0087	Counter	1	
M24	XUC5FT	Stop Ring	2	
M25	QXL1148	Shifter Arm Assembly	1	
M26	XSN3+6S	Screw	5	
M27	XWC3B	Washer	7	
M28	QBT1239	Spring	2	
M29	QMH2004	Cue Holder	1	
M30	QXA0606	Angle (L) Assembly	1	
M31	QMR1571	Rod (L)	1	
M32	QME0147	Brake Plunger	2	
M33	QBT1420	Recording Lever Spring	2	
M34	QBT1687	Spring	2	
M35	QXL1111	Arm (L)	1	
M36	QXL1108	Sub Arm (L) Assembly	1	
M37	QXL1112	Brake Lever Assembly	2	
M38	QBT1322	Spring	2	
M39	QMF1929	Spring Hook Plate	1	
M40	QMN2139	Shaft	1	
M41	QXL1103	Sub Arm (L) Assembly	1	
M42	XWG4	Washer	4	
M43	QMN2140	Shaft	2	
M44	QBC1071	Spring	2	
M45	XSN2+12	Screw	2	
M46	XWA2BFZ	Washer	2	
M47	QBT1664	Spring	2	
M48	XSN26+6	Screw	2	
M49	QBK1217	Isolation Sheet	2	
M50	XWA26B	Washer	2	
M51	QMF1682	Switch Holding Plate	2	
M52	XUC2FT	Stop Ring	4	
M53	QDP1704	Roller	2	
M54	XUC5FT	Stop Ring	7	
M55	QXL1098	Pressure Roller Lever Assembly	2	
M56	QMC0053	Spacer	2	
M57	QMS2428	Shaft	2	
M58	QBW0034	Washer	4	
M60	XVE5C30FZS	Hexagon Screw	3	
M61	QXH0268	Flywheel Cover	1	
M62	QXS1090Z	Capstan Motor Assembly	1	

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	
M125	XS2+4	Screw	4		
M126	XWG2FZ	Washer	4		
M127	QBC1180	Spring	12		
M128	QMG0029	Tape Guide	2		
M129	QMA2929	Angle	1		
M130	XSS26+6BV	Screw	2		
M131	QNQ1069	Nut	2		
M132	QH1248	Screw	14		
M133	QMK1680	Head Base Plate	1		
RESISTORS					
R1	ERD25TJ102	Carbon Resistor	1	1KΩ 1/4W	SD SUPPLY
R2	ERD25TJ100	"	1	10Ω 1/4W	"
R3	ERD25TJ102	"	1	1KΩ 1/4W	"
R4	ERD25TJ100	"	1	10Ω 1/4W	"
R5	ERD25TJ102	"	1	1KΩ 1/4W	"
R6	ERD25TJ100	"	1	10Ω 1/4W	"
R7	ERD25TJ102	"	1	1KΩ 1/4W	"
R8	ERD25TJ100	"	1	10Ω 1/4W	"
R9	ERD25TJ102	"	1	1KΩ 1/4W	"
R10	ERD25TJ100	"	1	10Ω 1/4W	"
R11	ERD25TJ102	"	1	1KΩ 1/4W	"
R12	ERD25TJ100	"	1	10Ω 1/4W	"
R13	ERD25TJ102	"	1	1KΩ 1/4W	"
R14	ERD25TJ100	"	1	10Ω 1/4W	"
R15	ERD25TJ562	"	1	5.6KΩ 1/4W	"
R16	ERD25TJ151	"	1	150Ω 1/4W	"
R17	ERD25TJ102	"	1	1KΩ 1/4W	"
R18	ERD25TJ100	"	1	10Ω 1/4W	"
R19	ERD25TJ102	"	1	1KΩ 1/4W	"
R20	ERD25TJ100	"	1	10Ω 1/4W	"
R21, 22, 23	ERD25TJ102	"	3	1KΩ 1/4W	"
R24	ERD25TJ273	"	1	27KΩ 1/4W	"
R25	ERD25TJ103	"	1	10KΩ 1/4W	"

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks		Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	
R72, 73, 74, 75	ERD25TJ103	Carbon Resistor	4	SD SUPPLY		R112	ERD25TJ182	Carbon Resistor	1	SD SUPPLY	
R76, 77	ERD25TJ334	"	2	"		R113	ERD25TJ472	"	1	"	
R78	ERD25TJ103	"	1	"		R114	ERD25TJ273	"	1	"	
R79	ERD25TJ273	"	1	"							
R80, 81	ERD25TJ103	"	2	"		R115	ERD25TJ682	"	1	"	
R82	ERD25TJ273	"	1	"		R116	ERD25TJ101	"	1	"	
R83	ERD25TJ103	"	1	"		R117	ERD25TJ224	"	1	"	
R84	ERD25TJ273	"	1	"		R118	ERG12ANJ471	Metal-oxide Resistor	1	"	
R85	ERD25TJ103	"	1	"		R121	ERD25TJ101	Carbon Resistor	1	"	
R86	ERD25TJ473	"	1	"		R122	ERD25TJ333	"	1	"	
R87	ERD25TJ222	"	1	"		R123	ERD25TJ104	"	1	"	
R88	ERD25TJ151	"	1	"		R124	ERD25TJ472	"	1	"	
R89	ERD25TJ152	"	1	"		R125	ERD25TJ272	"	1	"	
R90	ERD25TJ104	"	1	"		R126	ERD25TJ102	"	1	"	
R91	ERD25TJ562	"	1	"							
R92	ERD25TJ103	"	1	"		R127	ERD25TJ333	"	1	"	
R93	ERD25TJ473	"	1	"		R128	ERD25TJ392	"	1	"	
R94	ERD25TJ103	"	1	"		R129, 130	ERD25TJ104	"	2	"	
R95	ERD25TJ472	"	1	"		R131	ERD25TJ101	"	1	"	
R96	ERD25TJ562	"	1	"		R132	ERD25TJ682	"	1	"	
R97	ERD25TJ473	"	1	"		R133, 134	ERD25TJ182	"	2	"	
R98	ERD25TJ472	"	1	"		R135	ERD25TJ682	"	1	"	
R99	ERD25TJ562	"	1	"		R136	ERD25TJ103	"	1	"	
R101, 102	ERD25TJ471	"	1	"		R137	ERD25TJ102	"	1	"	
R103	ERD25TJ392	"	1	"		R138	ERD25TJ103	"	1	"	
R105	ERD25TJ101	"	1	"		R139	ERD25TJ101	"	1	"	
R106	ERD25TJ153	"	1	"		R140	ERD25TJ154	"	1	"	
R107	ERD25TJ822	"	1	"		R141	ERD25TJ273	"	1	"	
R108	ERD25TJ271	"	1	"		R142	ERD25TJ472	"	1	"	
R109	ERD25TJ102	"	1	"		R143	ERD25TJ152	"	1	"	
R110	ERD25TJ104	"	1	"		R144	ERD25TJ822	"	1	"	
R111	ERD25TJ682	"	1	"		R145	ERD25TJ152	"	1	"	
						R146, 147	ERD25TJ102	"	2	"	
						R148	ERD25TJ332	"	1	"	

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	
R149	ERD25TJ182	Carbon Resistor 1.8KΩ 1/4W	1	SD SUPPLY	
R150	ERD25TJ184	" 180KΩ 1/4W	1	"	
R151	ERD25TJ332	" 3.2KΩ 1/4W	1	"	
R152	ERD25TJ273	" 27KΩ 1/4W	1	"	
R153	ERD25TJ103	" 10KΩ 1/4W	1	"	
R154	ERD25TJ122	" 1.2KΩ 1/4W	1	"	
R155	ERD25TJ334	" 330KΩ 1/4W	1	"	
R156	ERD25TJ823	" 82KΩ 1/4W	1	"	
R157	ERD25TJ153	" 15KΩ 1/4W	1	"	
R158	ERD25TJ562	" 5.6KΩ 1/4W	1	"	
R159	ERD25TJ472	" 4.7KΩ 1/4W	1	"	
R160	ERD25TJ222	" 2.2KΩ 1/4W	1	"	
R161	ERD25TJ123	" 12KΩ 1/4W	1	"	
R162, 163	ERD25TJ102	" 1KΩ 1/4W	2	"	
R164	ERD25TJ101	" 100Ω 1/4W	1	"	
R165	ERD25TJ823	" 82KΩ 1/4W	1	"	
R166	ERD25TJ393	" 39KΩ 1/4W	1	"	
R167, 168	ERG12ANJ470	Metal-oxide Resistor 47Ω 1/2W	2	"	
R169	ERD25TJ152	Carbon Resistor 1.5KΩ 1/4W	1	"	
R170	ERD25TJ272	" 2.7KΩ 1/4W	1	"	
R171	ERD25TJ154	" 150KΩ 1/4W	1	"	
R172	ERD25TJ101	" 100Ω 1/4W	1	"	
R173	ERD25TJ153	" 15KΩ 1/4W	1	"	
R174	ERD25TJ123	" 12KΩ 1/4W	1	"	
R175	ERD25TJ390	" 39Ω 1/4W	1	"	
R176	ERD25TJ104	" 100KΩ 1/4W	1	"	
R177	ERD25TJ103	" 10KΩ 1/4W	1	"	
R178	ERD25TJ222	" 2.2KΩ 1/4W	1	"	
R179	ERD25TJ394	" 390KΩ 1/4W	1	"	
R180	ERD25TJ332	" 3.3KΩ 1/4W	1	"	
R181	ERD25TJ101	" 100Ω 1/4W	1	"	
	— Cont. —				
R182	ERD25TJ683	Carbon Resistor 68KΩ 1/4W	1	SD SUPPLY	
R183	ERD25TJ471	" 470Ω 1/4W	1	"	
R184	ERD25TJ102	" 1KΩ 1/4W	1	"	
R185	ERD25TJ822	" 8.2KΩ 1/4W	1	"	
R187	ERD25TJ682	" 6.8KΩ 1/4W	1	"	
R188	ERD25TJ474	" 470KΩ 1/4W	1	"	
R189	ERD25TJ122	" 1.2KΩ 1/4W	1	"	
R190	ERD25TJ472	" 4.7KΩ 1/4W	1	"	
R191	ERD25TJ104	" 100KΩ 1/4W	1	"	
R192	ERG1ANJ151	Metal-oxide Resistor 150Ω 1W	1	"	
R193	ERG12ANJ271	" 270Ω 1/2W	1	"	
R194	ERD25TJ153	Carbon Resistor 15KΩ 1/4W	1	"	
R195	ERG1ANJ681	Metal-oxide Resistor 680Ω 1W	1	"	
R196	ERD25TJ273	Carbon Resistor 27KΩ 1/4W	1	"	
R197	ERD25TJ332	" 3.3KΩ 1/4W	1	"	
R201, 202	ERD25TJ471	" 470Ω 1/4W	2	"	
R203	ERD25TJ392	" 3.9KΩ 1/4W	1	"	
R205	ERD25TJ101	" 100Ω 1/4W	1	"	
R206	ERD25TJ153	" 15KΩ 1/4W	1	"	
R207	ERD25TJ822	" 8.2KΩ 1/4W	1	"	
R208	ERD25TJ271	" 270Ω 1/4W	1	"	
R209	ERD25TJ102	" 1KΩ 1/4W	1	"	
R210	ERD25TJ104	" 100KΩ 1/4W	1	"	
R211	ERD25TJ682	" 6.8KΩ 1/4W	1	"	
R212	ERD25TJ182	" 1.8KΩ 1/4W	1	"	
R213	ERD25TJ472	" 4.7KΩ 1/4W	1	"	
R214	ERD25TJ273	" 27KΩ 1/4W	1	"	
R215	ERD25TJ682	" 6.8KΩ 1/4W	1	"	
R216	ERD25TJ101	" 100Ω 1/4W	1	"	
R217	ERD25TJ224	" 220KΩ 1/4W	1	"	
R221	ERD25TJ101	" 100Ω 1/4W	1	"	
R222	ERD25TJ333	" 33KΩ 1/4W	1	"	

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	
R223	ERD25TJ104	Carbon Resistor 100KΩ 1/4W	1	SD SUPPLY	
R224	ERD25TJ472	" 4.7KΩ 1/4W	1	"	
R225	ERD25TJ272	" 2.7KΩ 1/4W	1	"	
R226	ERD25TJ102	" 1KΩ 1/4W	1	"	
R227	ERD25TJ333	" 33KΩ 1/4W	1	"	
R228	ERD25TJ392	" 3.9KΩ 1/4W	1	"	
R229, 230	ERD25TJ104	" 100KΩ 1/4W	2	"	
R231	ERD25TJ101	" 100Ω 1/4W	1	"	
R232	ERD25TJ682	" 6.8KΩ 1/4W	1	"	
R233, 234	ERD25TJ182	" 1.8KΩ 1/4W	2	"	
R235	ERD25TJ682	" 6.8KΩ 1/4W	1	"	
R236	ERD25TJ103	" 10KΩ 1/4W	1	"	
R237	ERD25TJ102	" 1KΩ 1/4W	1	"	
R238	ERD25TJ103	" 10KΩ 1/4W	1	"	
R239	ERD25TJ101	" 100Ω 1/4W	1	"	
R240	ERD25TJ154	" 150KΩ 1/4W	1	"	
R241	ERD25TJ273	" 27KΩ 1/4W	1	"	
R242	ERD25TJ472	" 4.7KΩ 1/4W	1	"	
R243	ERD25TJ152	" 1.5KΩ 1/4W	1	"	
R244	ERD25TJ822	" 8.2KΩ 1/4W	1	"	
R245	ERD25TJ152	" 1.5KΩ 1/4W	1	"	
R246	ERD25TJ102	" 1KΩ 1/4W	1	"	
R251	ERD25TJ332	" 3.3KΩ 1/4W	1	"	
R252	ERD25TJ273	" 27KΩ 1/4W	1	"	
R253	ERD25TJ103	" 10KΩ 1/4W	1	"	
R254	ERD25TJ122	" 1.2KΩ 1/4W	1	"	
R255	ERD25TJ334	" 330KΩ 1/4W	1	"	
R256	ERD25TJ823	" 82KΩ 1/4W	1	"	
R257	ERD25TJ153	" 15KΩ 1/4W	1	"	
R258	ERD25TJ562	" 5.6KΩ 1/4W	1	"	
R259	ERD25TJ472	" 4.7KΩ 1/4W	1	"	
R260	ERD25TJ222	" 2.2KΩ 1/4W	1	"	
R261	ERD25TJ123	Carbon Resistor 12KΩ 1/4W	1	SD SUPPLY	
R262, 263	ERD25TJ102	" 1KΩ 1/4W	2	"	
R264	ERD25TJ101	" 100Ω 1/4W	1	"	
R265	ERD25TJ823	" 82KΩ 1/4W	1	"	
R266	ERD25TJ393	" 39KΩ 1/4W	1	"	
R267, 268	ERG12ANJ470	Metal-oxide Resistor 47Ω 1/2W	2	"	
R269	ERD25TJ152	Carbon Resistor 1.5KΩ 1/4W	1	"	
R271	ERD25TJ154	" 150KΩ 1/4W	1	"	
R272	ERD25TJ101	" 100Ω 1/4W	1	"	
R273	ERD25TJ153	" 15KΩ 1/4W	1	"	
R274	ERD25TJ123	" 12KΩ 1/4W	1	"	
R275	ERD25TJ390	" 39Ω 1/4W	1	"	
R276	ERD25TJ104	" 100KΩ 1/4W	1	"	
R277	ERD25TJ103	" 10KΩ 1/4W	1	"	
R278	ERD25TJ222	" 2.2KΩ 1/4W	1	"	
R279	ERD25TJ394	" 390KΩ 1/4W	1	"	
R280	ERD25TJ332	" 3.3KΩ 1/4W	1	"	
R281	ERD25TJ101	" 100Ω 1/4W	1	"	
R282	ERD25TJ683	" 68KΩ 1/4W	1	"	
R283	ERD25TJ471	" 470Ω 1/4W	1	"	
R284	ERD25TJ102	" 1KΩ 1/4W	1	"	
R285	ERD25TJ822	" 8.2KΩ 1/4W	1	"	
R287	ERD25TJ682	" 6.8KΩ 1/4W	1	"	
R288	ERD25TJ474	" 470KΩ 1/4W	1	"	
R289	ERD25TJ122	" 1.2KΩ 1/4W	1	"	
R290	ERD25TJ472	" 4.7KΩ 1/4W	1	"	
R291	ERD25TJ104	" 100KΩ 1/4W	1	"	
R293	ERG12ANJ271	Metal-oxide Resistor 270Ω 1/2W	1	"	
R294	ERD25TJ153	Carbon Resistor 15KΩ 1/4W	1	"	
R296	ERD25TJ273	" 27KΩ 1/4W	1	"	
R297	ERD25TJ332	" 3.3KΩ 1/4W	1	"	
R301	ERD25TJ394	" 390KΩ 1/4W	1	"	

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	
R302	ERD25TJ223	Carbon Resistor	1	SD SUPPLY	
R303	ERD25TJ103	"	1	"	
R304	ERD25TJ153	"	1	"	
R305	ERD25TJ221	"	1	"	
R306	ERD25TJ392	"	1	"	
R307	ERD25TJ271	"	1	"	
R308	ERD25TJ273	"	1	"	
R309, 310	ERD25TJ102	"	2	"	
R312	ERD25TJ103	"	1	"	
R313	ERD25TJ154	"	1	"	
R314	ERD25TJ474	"	1	"	
R315	ERD25TJ153	"	1	"	
R316	ERD25TJ821	"	1	"	
R317, 321	ERD25TJ271	"	2	"	
R323	ERD25TJ822	"	1	"	
R324	ERD25TJ332	"	1	"	
R325, 326	ERD25TJ474	"	2	"	
R327	ERD25TJ103	"	1	"	
R328	ERD25TJ822	"	1	"	
R329	ERD25TJ221	"	1	"	
R330, 331	ERD25TJ154	"	2	"	
R332	ERD25TJ102	"	1	"	
R333	ERD25TJ123	"	1	"	
R334, 335, 336, 337, 338, 339, 340, 341, 342	ERD25TJ474	"	9	"	
R343, 344, 345, 346, 347, 348, 349, 350, 351	ERD25TJ471	"	9	"	
R352	ERD25TJ151	"	1	"	
R353	ERD25TJ330	"	1	"	
R354	ERD25TJ100	"	1	"	
R355	ERG1ANJ390	Metal-oxide Resistor	1	"	
R356	ERD25TJ561	Carbon Resistor	1	"	
R357	ERD25TJ103	Carbon Resistor	1	SD SUPPLY	
R358	ERD25TJ393	"	1	"	
R359	ERD25TJ152	"	1	"	
R360	ERD25TJ561	"	1	"	
R361, 362	ERD25TJ470	"	2	"	
R363	ERD25TJ102	"	1	"	
R364, 365	ERD25TJ222	"	2	"	
R366	ERD25TJ562	"	1	"	
R367	ERD25TJ561	"	1	"	
R368	ERG12ANJ471	Metal-oxide Resistor	1	"	
R369	ERG12ANJ561	"	1	"	
R370	ERD25TJ122	"	1	"	
R401	ERD25TJ394	Carbon Resistor	1	"	
R402	ERD25TJ223	"	1	"	
R403	ERD25TJ103	"	1	"	
R404	ERD25TJ153	"	1	"	
R405	ERD25TJ221	"	1	"	
R406	ERD25TJ392	"	1	"	
R407	ERD25TJ271	"	1	"	
R408	ERD25TJ273	"	1	"	
R409, 410	ERD25TJ102	"	2	"	
R412	ERD25TJ103	"	1	"	
R413	ERD25TJ154	"	1	"	
R414	ERD25TJ474	"	1	"	
R415	ERD25TJ153	"	1	"	
R416	ERG12ANJ821	Metal-oxide Resistor	1	"	
R417, 421	ERD25TJ271	Carbon Resistor	2	"	
R423	ERD25TJ822	"	1	"	
R424	ERD25TJ332	"	1	"	
R425, 426	ERD25TJ474	"	2	"	
R427	ERD25TJ103	"	1	"	
R428	ERD25TJ822	"	1	"	

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks		Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	
R429	ERD25TJ221	Carbon Resistor	1	SD SUPPLY		R553	ERG12ANJ560	Metal-oxide Resistor	1	SD SUPPLY	
R430, 431	ERD25TJ154	"	2	"		R554	ERD25TJ6R8	Carbon Resistor	1	"	
R432	ERD25TJ102	"	1	"		R555	ERG1ANJ221	Metal-oxide Resistor	1	"	
R433	ERD25TJ123	"	1	"		R556	ERG1ANJ102	"	1	"	
R434, 435, 436, 437, 438, 439, 440, 441, 442	ERD25TJ474	"	9	"		R557, 558	ERG1ANJ120	"	2	"	
R443, 444, 445, 446, 447, 448, 449, 450, 451	ERD25TJ471	"	9	"		R559	ERG2ANJ122	"	1	"	
R452	ERD25TJ151	"	1	"		R561	ERD25TJ223	Carbon Resistor	1	"	
R453	ERD25TJ330	"	1	"		R562	ERD25TJ472	"	1	"	
R454	ERD25TJ100	"	1	"		R563	ERD25TJ392	"	1	"	
R501, 502	ERD25TJ472	"	2	"		R564	ERD25TJ681	"	1	"	
R503	ERD25TJ221	"	1	"		R565	ERD25TJ272	"	1	"	
R504	ERD25TJ820	"	1	"		R566	ERD25TJ332	"	1	"	
R505	ERG12ANJ821	Metal-oxide Resistor	1	"		R567	ERD25TJ562	"	1	"	
R506	ERD25TJ223	Carbon Resistor	1	"		R568	ERD25TJ103	"	1	"	
R507	ERD25TJ681	"	1	"		R569, 570	ERG12ANJ151	Metal-oxide Resistor	2	"	
R508, 509	ERD25TJ470	"	2	"		R571	ERD25TJ563	Carbon Resistor	1	"	
R510	ERD25TJ223	"	1	"		R572	ERD25TJ273	"	1	"	
R511	ERD25TJ222	"	1	"		R573	ERD25TJ333	"	1	"	
R512, 513	ERD25TJ561	"	2	"		R574	ERG12ANJ681	Metal-oxide Resistor	1	"	
R531, 532	ERD25TJ472	"	2	"		R575	ERD25TJ562	Carbon Resistor	1	"	
R533	ERD25TJ221	"	1	"		R576	ERD25TJ103	"	1	"	
R534	ERD25TJ820	"	1	"		R577, 578, 579, 580, 581, 581	ERD25TJ102	"	6	"	
R535	ERG12ANJ821	Metal-oxide Resistor	1	"		R583	ERD25TJ562	"	1	"	
R536	ERD25TJ223	Carbon Resistor	1	"		R584, 585, 586, 587, 588, 589	ERD25TJ102	"	6	"	
R537	ERD25TJ681	"	1	"		R590, 591	ERG1ANJ223	Metal-oxide Resistor	2	"	
R538, 539	ERD25TJ470	"	2	"		R592, 593	ERG12ANJ123	"	2	"	
R540	ERD25TJ223	"	1	"		R594, 595, 596, 597	ERD25TJ472	Carbon Resistor	4	"	
R541	ERD25TJ222	"	1	"		R598	ERD25TJ100	"	1	"	
R551	ERD25TJ472	"	1	"		R599	ERX12ANJ100	Metal-oxide Resistor	1	"	
R552	ERD25TJ682	"	1	"							

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	
R601	ERD25TJ223	Carbon Resistor 22KΩ 1/4W	1	SD SUPPLY	
R602	ERG12ANJ821	Metal-oxide Resistor 820Ω 1/2W	1	"	
R603	ERD25TJ392	Carbon Resistor 3.9KΩ 1/4W	1	"	
R604	ERD25TJ222	" 2.2KΩ 1/4W	1	"	
R605	ERD25TJ472	" 4.7KΩ 1/4W	1	"	
R606	ERD25TJ222	" 2.2KΩ 1/4W	1	"	
R607	ERG12ANJ561	Metal-oxide Resistor 560Ω 1/2W	1	"	
R608	ERD25TJ103	Carbon Resistor 10KΩ 1/4W	1	"	
R609	ERD25TJ223	" 22KΩ 1/4W	1	"	
R610, 611	ERG12ANJ821	Metal-oxide Resistor 820Ω 1/2W	2	"	
R612	ERD25TJ222	Carbon Resistor 2.2KΩ 1/4W	1	"	
R613	ERD25TJ472	" 4.7KΩ 1/4W	1	"	
R614	ERD25TJ222	" 2.2KΩ 1/4W	1	"	
R615	ERD25TJ223	" 22KΩ 1/4W	1	"	
R616	ERD25TJ472	" 4.7KΩ 1/4W	1	"	
R617	ERG1ANJ332	Metal-oxide Resistor 3.3KΩ 1W	1	"	
R618	ERD25TJ472	Carbon Resistor 4.7KΩ 1/4W	1	"	
R619	ERD25TJ273	" 27KΩ 1/4W	1	"	
R651	ERD25TJ472	" 4.7KΩ 1/4W	1	"	
R652	ERD25TJ471	" 470Ω 1/4W	1	"	
R653	ERD25TJ681	" 680Ω 1/4W	1	"	
R654	ERF5ZJ221	Cement Resistor 220Ω 1W	1	"	
R655	ERD25TJ472	Carbon Resistor 4.7KΩ 1/4W	1	SD SUPPLY	
R656	ERD25TJ471	" 470Ω 1/4W	1	"	
R657	ERD25TJ681	" 680Ω 1/4W	1	"	
R658	ERF7ZJ680	Cement Resistor 68Ω 1W	1	"	
R701, 702, 703, 704					
	ERD25TJ103	Carbon Resistor 10KΩ 1/4W	4	SD SUPPLY	
R705, 706	ERD25TJ472	" 4.7KΩ 1/4W	2	"	
R707, 708	ERD25TJ152	" 1.5KΩ 1/4W	2	"	
R709, 710, 711, 712, 713, 714	ERD25TJ274	" 270KΩ 1/4W	6	"	

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	
				Ref. No.	Part No.
R829, 830, 831, 832	ERD25TJ103	Carbon Resistor	4	SD SUPPLY	
R833, 834	ERD25TJ100	"	2	"	
R835, 836	ERD25TJ103	"	2	"	
R837, 838	ERD25TJ273	"	2	"	
R839, 840	ERD25TJ473	"	2	"	
R841, 842	ERD25TJ273	"	2	"	
R843, 844	ERD25TJ272	"	2	"	
R845, 846	ERD25TJ103	"	2	"	
R847, 848	ERD25TJ273	"	2	"	
R849, 850	ERD25TJ823	"	2	"	
R851, 852	ERD25TJ272	"	2	"	
R853, 854	ERD25TJ103	"	2	"	
R855, 856	ERD25TJ822	"	2	"	
R857, 858	ERD25TJ272	"	2	"	
R859, 860	ERD25TJ103	"	2	"	
R861, 862	ERD25TJ394	"	2	"	
R863, 864	ERD25TJ823	"	2	"	
R865, 866	ERD25TJ273	"	2	"	
R867, 868	ERD25TJ153	"	2	"	
R869, 870	ERD25TJ224	"	2	"	
R881	ERD25TJ103	"	1	"	
R882	ERD25TJ184	"	1	"	
R883	ERD25TJ473	"	1	"	
R884, 885	ERD25TJ273	"	2	"	
R892	ERD25TJ272	"	1	"	
R893	ERD25TJ103	"	1	"	
R894	ERD25TJ471	"	1	"	
R896	ERD25TJ103	"	1	"	
R897	ERD25TJ473	"	1	"	
R898	ERD25TJ273	"	1	"	
R901, 902	ERD25TJ102	"	2	"	
R903	ERD25TJ473	Carbon Resistor	1	SD SUPPLY	
R904	ERD25TJ472	"	1	"	
R905	ERD25TJ333	"	1	"	
R906	ERD25TJ223	"	1	"	
R907	ERD25TJ331	"	1	"	
R908	ERD25TJ561	"	1	"	
R909	ERD25TJ102	"	1	"	
R911	ERD25TJ683	"	1	"	
R912	ERD25TJ393	"	1	"	
R913	ERD25TJ273	"	1	"	
R914	ERD25TJ223	"	1	"	
R915, 917	ERD25TJ472	"	2	"	
R918	ERD25TJ393	"	1	"	
R919	ERD25TJ222	"	1	"	
R920	ERD25TJ103	"	1	"	
R926	ERD25TJ104	"	1	"	
R927	ERD25TJ103	"	1	"	
R928	ERD25TJ183	"	1	"	
R929	ERD25TJ823	"	1	"	
R930	ERD25TJ124	"	1	"	
R931	ERD25TJ473	"	1	"	
R932	ERD25TJ124	"	1	"	
R933	ERD25TJ682	"	1	"	
R934	ERD25TJ103	"	1	"	
R935	ERD25TJ222	"	1	"	
R936	ERD25TJ562	"	1	"	
R937	ERD25TJ122	"	1	"	
R938	ERD25TJ272	"	1	"	
R939	ERD25TJ472	"	1	"	
R941, 942	ERD25TJ103	"	2	"	
R943	ERD25TJ223	"	1	"	
R944	ERD25TJ182	"	1	"	

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	
R945	ERD25TJ392	Carbon Resistor 3.9KΩ 1/4W	1	SD SUPPLY	
R946	ERD25TJ106	" 10MΩ 1/4W	1	"	
R947	ERD25TJ103	" 10KΩ 1/4W	1	"	
R948	ERD25TJ820	" 82Ω 1/4W	1	"	
R949	ERGIANJ331	Metal-oxide Resistor 330Ω 1W	1	"	
R951	ERD25TJ183	Carbon Resistor 18KΩ 1/4W	1	"	
R952	ERD25TJ103	" 10KΩ 1/4W	1	"	
R953	ERD25TJ105	" 1MΩ 1/4W	1	"	
R954	ERD25TJ103	" 10KΩ 1/4W	1	"	
R955	ERD25TJ105	" 1MΩ 1/4W	1	"	
R956, 957, 958, 959, 960, 966, 967, 968, 969					
R970, 971, 972					
R974	ERGI2ANJ101	Metal-oxide Resistor 100Ω 1/2W	3	"	
R975, 976, 977	ERXIANJ1R5	" 1.5Ω 1W	1	"	
R978, 980	ERD25TJ270	Carbon Resistor 27Ω 1/4W	3	"	
R981, 982, 983	ERD25TJ103	" 10KΩ 1/4W	2	"	
R984, 985, 986, 987	ERD25TJ820	Metal-oxide Resistor 82Ω 1/2W	3	"	
R988	ERD25TJ103	Carbon Resistor 10KΩ 1/4W	4	"	
R989	ERD25TJ823	" 82KΩ 1/4W	1	"	
R990	ERD25TJ183	" 18KΩ 1/4W	1	"	
R991	ERD25TJ153	" 15KΩ 1/4W	1	"	
R992	ERD25TJ104	" 100KΩ 1/4W	1	"	
R993, 994, 996	ERD25TJ224	" 220KΩ 1/4W	1	"	
R997	ERD25TJ103	" 10KΩ 1/4W	3	"	
R999	ERD25TJ223	" 22KΩ 1/4W	1	"	
R1001	ERD25TJ823	" 82KΩ 1/4W	1	"	
	ERD25TJ472	" 4.7KΩ 1/4W	1	"	
R1002	ERD25TJ103	Carbon Resistor 10KΩ 1/4W	1	SD SUPPLY	
R1003	ERD25TJ562	" 5.6KΩ 1/4W	1	"	
R1004	ERD25TJ473	" 47KΩ 1/4W	1	"	
R1005	ERD25TJ222	" 2.2KΩ 1/4W	1	"	
R1006	ERD25TJ330	" 33Ω 1/4W	1	"	
R1007	ERD25TJ472	" 4.7KΩ 1/4W	1	"	
R1008	ERD25TJ103	" 10KΩ 1/4W	1	"	
R1009	ERD25TJ102	" 1KΩ 1/4W	1	"	
R1010	ERD25TJ222	" 2.2KΩ 1/4W	1	"	
R1011	ERD25TJ103	" 10KΩ 1/4W	1	"	
R1012	ERD25TJ273	" 27KΩ 1/4W	1	"	
R1013	ERD25TJ103	" 10KΩ 1/4W	1	"	
R1014	ERD25TJ273	" 27KΩ 1/4W	1	"	
R1015	ERD25TJ103	" 10KΩ 1/4W	1	"	
R1016	ERD25TJ273	" 27KΩ 1/4W	1	"	
R1017	ERD25TJ103	" 10KΩ 1/4W	1	"	
R1018	ERD25TJ273	" 27KΩ 1/4W	1	"	
R1019	ERD25TJ103	" 10KΩ 1/4W	1	"	
R1020	ERD25TJ102	" 1KΩ 1/4W	1	"	
R1021	ERD25TJ100	" 10Ω 1/4W	1	"	
R1901, 1902	ERD25TJ103	" 10KΩ 1/4W	2	"	
R1903	ERD25TJ182	" 1.8KΩ 1/4W	1	"	
R1904	ERD25TJ392	" 3.9KΩ 1/4W	1	"	
R1911	ERD25TJ104	" 100KΩ 1/4W	1	"	
R1912, 1913	ERD25TJ473	" 47KΩ 1/4W	2	"	
R1914	ERD25TJ104	" 100KΩ 1/4W	1	"	
R1915, 1916	ERD25TJ473	" 47KΩ 1/4W	2	"	
VARIABLE RESISTORS					
VR1	EVNK0AA00B24	Semi-fixed Variable Resistor 20KΩ (B)	1		
VR101	EVNK4AA00B15	" 100KΩ (B)	1		
	— Cont. —				

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
VR102, 103 202, 203	EVFFWAR30A24	Variable Resistor	2		C15	ECEA10V100	Electrolytic Capacitor	1	SD SUPPLY
VR104, 105	EVNK4AA00B14	Semi-fixed Variable Resistor	2		C16	ECEA6V330	"	1	"
VR106	EVNK4AA00B53	"	1		C17	ECEA16Z10	"	1	"
VR107, 207	EVFFWAR30A24	Variable Resistor	1		C18, 19	ECQM05683KZ	Mylar Capacitor	2	
VR108	EVL3SAA00B52	Semi-fixed Variable Resistor	1		C20	ECEA50Z2R2	Electrolytic Capacitor	1	SD SUPPLY
VR109	EVNK4AA00B25	"	1		C21	ECEA16Z10	"	1	"
VR110	EVNK4AA00B24	"	1		C22	ECKD1H103ZF	Ceramic Capacitor	1	
VR201	EVNK4AA00B15	"	1		C23, 24	ECEA50V1	Electrolytic Capacitor	2	SD SUPPLY
VR204, 205	EVNK4AA00B14	"	2		C25	ECEA25Z4R7	"	1	"
VR206	EVNK4AA00B53	"	1		C26, 27	ECEA16V10	"	2	"
VR208	EVL3SAA00B52	"	1		C28	ECQM05683KZ	Mylar Capacitor	1	
VR209	EVNK4AA00B25	"	1		C29	ECEA16V10	Electrolytic Capacitor	1	SD SUPPLY
VR210	EVNK4AA00B24	"	1		C30	ECEA16V33	"	1	"
VR501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513	EVNK4AA00B52	"	13		C31	ECEA10V100	"	1	"
VR601, 602	EVNK4AA00B13	"	2		C32	ECEA16V10	"	1	"
VR801, 802, 803, 804	EVNK0AA00B54	"	4		C33	ECQM05683KZ	Mylar Capacitor	1	
VR911	EVL50AA00B54	"	1		C34	ECKD1H103ZF	Ceramic Capacitor	1	
VR926	QVKF25B24	Variable Resistor	1		C101	ECSZ25AFIE	Tantalum Capacitor	1	
VR927	EVL50AA00B54	Semi-fixed Variable Resistor	1		C102	ECEA35V10	Electrolytic Capacitor	1	SD SUPPLY
VR928, 929	EVNK4AA00B14	"	2		C103	ECCD1H101K	Ceramic Capacitor	1	
VR966	EVNK4AA00B24	"	1		C104	ECEA10V100	Electrolytic Capacitor	1	SD SUPPLY
					C105	ECCD1H470KC	Ceramic Capacitor	1	
					C106	ECEA16V33	Electrolytic Capacitor	1	SD SUPPLY
					C107	ECKD1H471KB	Ceramic Capacitor	1	
					C108	ECEA16V33	Electrolytic Capacitor	1	SD SUPPLY
					C109	ECEA16V10	"	1	"
					C110	ECEA25V100	"	1	"
					C111	ECCD1H101K	Ceramic Capacitor	1	
					C113	ECEA16V10	Electrolytic Capacitor	1	SD SUPPLY
					C114	ECEA16V220	"	1	"
					C115	ECCD1H101K	Ceramic Capacitor	1	
					C116, 117	ECEA16V10	Electrolytic Capacitor	2	SD SUPPLY
CAPACITORS									
C1, 2	ECKD1H103ZF	Ceramic Capacitor	2						
C3	ECEA10V100	Electrolytic Capacitor	1	SD SUPPLY					
C4, 5, 6, 7, 8, 9, 10									
	ECCD1H103ZF	Ceramic Capacitor	7						
C11, 12	ECEA16V47	Electrolytic Capacitor	2	SD SUPPLY					
C13	ECEA16V10	"	1	"					
C14	ECEA50V2R2	"	1	"					

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks		Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	
C118	ECDD1H101K	Ceramic Capacitor	1			C153	ECEA25V100	Electrolytic Capacitor	1	SD SUPPLY	
C119	ECEA16V10	Electrolytic Capacitor	1	SD SUPPLY		C154, 155	ECKD1H102KB	Ceramic Capacitor	2		
C120	ECEA25V100	"	1	"		C156	ECQM05152KZ	Mylar Capacitor	1		
C121	ECEA16V10	"	1	"		C157, 158	ECQM05473KZ	"	2		
C122	ECDD1H101K	Ceramic Capacitor	1	SD SUPPLY		C160	ECEA35V470	Electrolytic Capacitor	1	SD SUPPLY	
C123	ECEA35V10	Electrolytic Capacitor	1			C161	ECEA50V1	"	1	"	
C124	ECQM05332JZ	Mylar Capacitor	1			C162, 171	ECEA16V10	"	2	"	
C125	ECEA16V10	Electrolytic Capacitor	1	SD SUPPLY		C172	ECEA16V33	"	1	"	
C126	ECEA16V33	"	1	"		C173	ECKD1H102KB	Ceramic Capacitor	1		
C127	ECDD1H101K	Ceramic Capacitor	1			C174	ECDD1H101K	"	1		
C128	ECEA16V10	Electrolytic Capacitor	1	SD SUPPLY		C175	ECEA50V1	Electrolytic Capacitor	1	SD SUPPLY	
C129	EQQS1681JZ	Styrol Capacitor	1								
C130	ECDD1H101K	Ceramic Capacitor	1			C176	ECQM05152KZ	Mylar Capacitor	1		
C131	ECQM05104JZ	Mylar Capacitor	1			C177	ECEA50V1	Electrolytic Capacitor	1	SD SUPPLY	
C132	ECDD1H101K	Ceramic Capacitor	1			C178	ECEA16V33	"	1	"	
C133	ECEA6V330	Electrolytic Capacitor	1	SD SUPPLY		C179	ECDD1H101K	Ceramic Capacitor	1		
C134, 135	ECEA35V10	"	2	"		C181	ECEA50ZR1	Electrolytic Capacitor	1	SD SUPPLY	
C136	ECEA16V10	"	1	"		C182	ECKD1H102KB	Ceramic Capacitor	1		
C137	EC5Z25AF1E	Tantalum Capacitor	1			C183	ECEA10V100	Electrolytic Capacitor	1	SD SUPPLY	
C138	ECDD1H101K	Ceramic Capacitor	1			C185	ECEA16V10	"	1	"	
C139	ECDD1H470KC	"	1			C186	ECDD1H101K	Ceramic Capacitor	1		
C140	ECEA6V330	Electrolytic Capacitor	1	SD SUPPLY		C187	ECEA16V10	Electrolytic Capacitor	1	SD SUPPLY	
C141	ECEA16V33	"	1			C188	ECQM05102KZ	Mylar Capacitor	1		
C142	ECKD1H471KB	Ceramic Capacitor	1	"		C189	ECEA50V3R3	Electrolytic Capacitor	1	SD SUPPLY	
C143	ECEA16V10	Electrolytic Capacitor	1	SD SUPPLY		C190	ECQM05822JZ	Mylar Capacitor	1		
C144	ECEA16V33	"	1	"		C191	ECKD1H223ZF	Ceramic Capacitor	1		
C145	ECQM05473JZ	Ceramic Capacitor	1			C192	ECQM05562JZ	Mylar Capacitor	1		
C146	ECKD1H471KB	"	1			C193	ECQM05332JZ	"	1		
C147, 148	ECEA25V100	Electrolytic Capacitor	2	SD SUPPLY		C194	ECQM05183JZ	"	1		
C149	ECQM05682JZ	Mylar Capacitor	1			C195	ECQM05153JZ	"	1		
C150, 151, 152	ECEA16V10	Electrolytic Capacitor	3	SD SUPPLY		C196	ECQM05123JZ	"	1		
						C197	ECQM05333JZ	"	1		
							— Cont. —				

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks		Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	
C198	EQM05273JZ	Mylar Capacitor	1	0.027 μ F		C234, 235	ECEA35V10	Electrolytic Capacitor	2	SD SUPPLY	
C199	EQM05223JZ	"	1	0.022 μ F		C236	ECEA16V10	"	1	"	
C201	EC5Z25AF1E	Tantalum Capacitor	1	1 μ F		C237	EC5Z25AF1E	Tantalum Capacitor	1		
C202	ECEA35V10	Electrolytic Capacitor	1	10 μ F	SD SUPPLY	C238	ECCD1H101K	Ceramic Capacitor	1		
C203	ECCD1H101K	Ceramic Capacitor	1	100pF		C239	ECCD1H470KC	"	1		
C204	ECEA10V100	Electrolytic Capacitor	1	100 μ F	SD SUPPLY	C240	ECEA6V330	Electrolytic Capacitor	1	SD SUPPLY	
C205	ECCD1H470KC	Ceramic Capacitor	1	47pF		C241	ECEA16V33	"	1	"	
C206	ECEA16V33	Electrolytic Capacitor	1	33 μ F	SD SUPPLY	C242	ECKD1H471KB	Ceramic Capacitor	1		
C207	ECKD1H471KB	Ceramic Capacitor	1	470pF							
C208	ECEA16V33	Electrolytic Capacitor	1	33 μ F	SD SUPPLY	C243	ECEA16V10	Electrolytic Capacitor	1	SD SUPPLY	
C209	ECEA16V10	"	1	10 μ F	"	C244	ECEA16V33	"	1	"	
C211	ECCD1H101K	Ceramic Capacitor	1	100pF		C245	EQM05473JZ	Mylar Capacitor	1		
C213	ECEA16V10	Electrolytic Capacitor	1	10 μ F	SD SUPPLY	C246	ECKD1H471KB	Ceramic Capacitor	1		
C214	ECEA16V220	"	1	220 μ F	"	C247	ECEA25V100	Electrolytic Capacitor	1	SD SUPPLY	
C215	ECCD1H101K	Ceramic Capacitor	1	100pF		C249	EQM05682JZ	Mylar Capacitor	1		
C216, 217	ECEA16V10	Electrolytic Capacitor	2	10 μ F	SD SUPPLY	C250, 252	ECEA16V10	Electrolytic Capacitor	2	SD SUPPLY	
C218	ECCD1H101K	Ceramic Capacitor	1	100pF		C256	EQM05152KZ	Mylar Capacitor	1		
C219	ECEA16V10	Electrolytic Capacitor	1	10 μ F	SD SUPPLY	C271	ECEA16V10	Electrolytic Capacitor	1	SD SUPPLY	
C220	ECEA25V100	"	1	100 μ F	"	C272	ECEA16V33	"	1	"	
C221	ECEA16V10	"	1	10 μ F	"	C273	ECKD1H102KB	Ceramic Capacitor	1		
C222	ECCD1H101K	Ceramic Capacitor	1	100pF		C274	ECCD1H101K	"	1		
C223	ECEA35V10	Electrolytic Capacitor	1	10 μ F	SD SUPPLY	C275	ECEA50V1	Electrolytic Capacitor	1	SD SUPPLY	
C224	EQM05332JZ	Mylar Capacitor	1	0.0033 μ F		C276	EQM05152KZ	Mylar Capacitor	1		
C225	ECEA16V10	Electrolytic Capacitor	1	10 μ F	SD SUPPLY	C277	ECEA50V1	Electrolytic Capacitor	1	SD SUPPLY	
C226	ECEA16V33	"	1	33 μ F	"	C278	ECEA16V33	"	1	"	
C227	ECCD1H101K	Ceramic Capacitor	1	100pF		C279	ECCD1H101K	Ceramic Capacitor	1		
C228	ECEA16V10	Electrolytic Capacitor	1	10 μ F	SD SUPPLY	C281	ECEA50ZR1	Electrolytic Capacitor	1	SD SUPPLY	
C229	EQS1681JZ	Styrol Capacitor	1	680pF		C282	ECKD1H102KB	Ceramic Capacitor	1		
C230	ECCD1H101K	Ceramic Capacitor	1	100pF		C283	ECEA10V100	Electrolytic Capacitor	1	SD SUPPLY	
C231	EQM05104JZ	Mylar Capacitor	1	0.1 μ F							
C232	ECCD1H101K	Ceramic Capacitor	1	100pF		C285	ECEA16V10	"	1	"	
C233	ECEA6V330	Electrolytic Capacitor	1	330 μ F	SD SUPPLY	C286	ECCD1H101K	Ceramic Capacitor	1		
						C287	ECEA16V10	Electrolytic Capacitor	1	SD SUPPLY	
						C288	EQM05102KZ	Mylar Capacitor	1		

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	
C289	ECEA50V3R3	Electrolytic Capacitor	1	SD SUPPLY	
C290	ECQM05822JZ	Mylar Capacitor	1		
C292	ECQM05662JZ	"	1		
C293	ECQM05332JZ	"	1		
C294	ECQM05183JZ	"	1		
C295	ECQM05153JZ	"	1		
C296	ECQM05123JZ	"	1		
C297	ECQM05333JZ	"	1		
C298	ECQM05273JZ	"	1		
C299	ECQM05223JZ	"	1		
C501	ECEA16V10	Electrolytic Capacitor	1	SD SUPPLY	
C502	ECQM05103KZ	Mylar Capacitor	1		
C503	ECQM05104KZ	"	1		
C504	ECQF4473KZ	Polypropylene Capacitor	1		
C505, 506	ECQF4822KZ	"	2		
C507	ECEA35V10	Electrolytic Capacitor	1	SD SUPPLY	
C511	ECEA16V10	"	1	"	
C512	ECQM05103KZ	Mylar Capacitor	1		
C513	ECQM05104KZ	"	1		
C514	ECQF4473KZ	Polypropylene Capacitor	1		
C515, 516	ECQF4822KZ	"	2		
C517	ECEA35V10	Electrolytic Capacitor	1	SD SUPPLY	
C521	ECEA16V10	"	1	"	
C522	ECQM05103KZ	Mylar Capacitor	1		
C523	ECQM05104KZ	"	1		
C525, 526	ECQF4333KZ	Polypropylene Capacitor	2		
C527	ECQS5681J	Styrol Capacitor	1		
C528	EC5Z25EF10Q	Tantalum Capacitor	1		
C533	ECQM05103KZ	Mylar Capacitor	1		
C534	ECEA16V10	Electrolytic Capacitor	1	SD SUPPLY	
C535	ECQM05393KZ	Mylar Capacitor	1		
C536	ECQM05104KZ	"	1		
C537, 538, 539, 540	ECCD1H470KC	Ceramic Capacitor	2		
C541	ECQF6332KZ	Polypropylene Capacitor	2		
C542	ECQF6102KZ	"	1		
	ECQS5101J	Styrol Capacitor	1		
C543	ECQS5221J	"	1		
C544, 545	ECQM05103KZ	Mylar Capacitor	2		
C601	ECET50R2200S	Electrolytic Capacitor	1		
C602	ECEA50V47	"	1	SD SUPPLY	
C603	ECEA50V1	"	1	"	
C604	ECKD1H103ZF	Ceramic Capacitor	1		
C605	ECEA35V10	Electrolytic Capacitor	1	SD SUPPLY	
C606	ECEA25V100	"	1	"	
C607	ECEA50V1	"	1	"	
C608	ECEA25V100	"	1	"	
C609	ECET50R2200S	"	1		
C610	ECEA50V47	"	1	SD SUPPLY	
C611	ECEA50V1	"	1	"	
C612	ECKD1H103ZF	Ceramic Capacitor	1		
C614	ECEA25V330	Electrolytic Capacitor	1	SD SUPPLY	
C615	ECET25R2200S	"	1		
C616, 617	ECEA50V1	"	2	SD SUPPLY	
C618	ECEA6V220	"	1	"	
C651	ECEA16V10	"	1	"	
C652	ECEA16V33	"	1	"	
C701, 702, 703, 704, 705, 706	ECQM05473KZ	Mylar Capacitor	6		
C707, 708	ECQM05103KZ	"	2		
C709, 710	ECQM05683KZ	"	2		
C711, 712, 713, 714, 715, 716	ECEA25N10	Electrolytic Capacitor	6	SD SUPPLY	
C717, 718	ECQM05102KZ	Mylar Capacitor	2		
C719, 720	ECCD1H101K	Ceramic Capacitor	2		

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	
C791	ECOD1H221K	Ceramic Capacitor	1		
C792	ECQM05153KZ	Mylar Capacitor	1		
C803, 804, 805, 806	ECQM05683KZ	"	4		
C807, 808	ECEA50V1	Electrolytic Capacitor	2	SD SUPPLY	
C809, 810	ECEA16V10	"	2		
C811, 812	ECEA50V1	"	2		
C813, 814	ECEA25Z4R7	"	2		
C815, 816	ECEA16V33	"	2		
C817, 818	ECEA16V10	"	2		
C881	ECEA16V33	"	1		
C882	ECEA10V100	"	1		
C883	ECEA35V4R7	"	1		
C901	ECQM05333KZ	Mylar Capacitor	1		
C902	ECEA35V4R7	Electrolytic Capacitor	1	SD SUPPLY	
C903	ECQM05102KZ	Mylar Capacitor	1		
C904, 905	ECEA16V10	Electrolytic Capacitor	2	SD SUPPLY	
C906	ECQM05102KZ	Mylar Capacitor	1		
C911	ECEA50Z1	Electrolytic Capacitor	1	SD SUPPLY	
C912	ECQM05272KZ	Mylar Capacitor	1		
C913	ECQM05473JZ	"	1		
C914	ECQM05104KZ	"	1		
C915	ECQM05473JZ	"	1		
C916	ECQM05104KZ	"	1		
C917, 918	ECQM05103KZ	"	2		
C919	ECQM05473KZ	"	1		
C920	ECQM05103KZ	"	1		
C921	ECEA50Z2R2	Electrolytic Capacitor	1	SD SUPPLY	
C926	ECEA50V1	"	1		
C927	ECEA16V47	"	1		
C928	ECEA35V10	"	1		
C929, 941	ECQM05103KZ	Mylar Capacitor	2		
C942	ECOD1H100KC	Ceramic Capacitor	1		
C944	ECQM05473KZ	Mylar Capacitor	1		
C951	ECEA16Z10	Electrolytic Capacitor	1	SD SUPPLY	
C966, 967, 968					
C969	ECEA50Z4R7	"	3		
C970	ECEA25V100	"	1		
C971	ECQM05682KZ	Mylar Capacitor	1		
C972, 973, 974	ECQM05333KZ	"	1		
C975	ECEA25N10	Electrolytic Capacitor	3	SD SUPPLY	
C976	ECQM05103KZ	Mylar Capacitor	1		
C977, 978	ECEA50ZR1	Electrolytic Capacitor	1	SD SUPPLY	
C989	ECQM05104KZ	Mylar Capacitor	2		
	ECOD1H100KC	Ceramic Capacitor	1		
COMBINATION PARTS					
Z601	QCRFWR1	C-C Combination Part	1		
Z602, 603	QCR0011	Spark Killer	2		
TRANSISTORS					
Tr1	2SC828	Transistor	1		
Tr2	2SA719	"	1		
Tr3	2SC1317	"	1		
Tr4	2SA719	"	1		
Tr5	2SC1317	"	1		
Tr6, 7	2SC828	"	2		
Tr8, 9	2SA719	"	2		
Tr10	2SC828	"	1		
Tr11, 12, 13	2SC1317	"	3		
Tr14	2SC828	"	1		
Tr15, 16	2SA564	"	2		
Tr17	2SC1317	"	1		
Tr18, 19, 20, 21	2SC828	"	4		

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
Tr22, 23	2SA719	Transistor	2		Tr130	2SC1684	Transistor	1	
Tr24	2SA564	"	1		Tr131	2SA564	"	1	
Tr25	2SC828	"	1		Tr132	2SC1317	"	1	
Tr26	2SC1317	"	1		Tr133, 134, 135, 136, 137				
Tr27, 28, 29, 30	2SC828	"	4		Tr138, 139	2SC828	"	5	
Tr31, 32	2SC1317	"	2		Tr140	2SC1684	"	2	
Tr33	2SA564	"	1		Tr141	2SC1383	"	1	
Tr34	2SC1317	"	1		Tr142	2SA683	"	1	
Tr35, 36, 37	2SC828	"	3		Tr143	2SC1383	"	1	
Tr38	2SA564	"	1		Tr144	2SC828	"	1	
Tr39	2SC828	"	1		Tr145, 146, 147, 148				
Tr40, 41	2SA564	"	2		Tr201, 202	2SA564	"	5	
Tr42, 43, 44, 45, 46		"			Tr203, 204, 205, 206, 207	2SC1327MST	"	2	
Tr47	2SC828	"	5		Tr208, 209	2SC1684	"	5	
Tr48, 49, 50, 51	2SC1317	"	1		Tr210	2SC828	"	2	
Tr52	PN150	Photo Transistor	1		Tr211	2SC1684	"	1	
Tr101, 102	2SC1327MST	Transistor	2		Tr214, 215, 216, 217, 218, 219, 220, 221, 222, 223	2SC1317	"	1	
Tr103, 104, 105, 106, 107		"			Tr224, 225	2SC828	"	10	
Tr108, 109	2SC1684	"	5		Tr226	2SC1327MST	"	2	
Tr110	2SC828	"	2		Tr227	2SC1684	"	1	
Tr111	2SC1684	"	1		Tr228	2SC828	"	1	
Tr112	2SC1317	"	1		Tr229	2SC1317	"	1	
Tr113, 114	2SA564	"	1		Tr230	2SC1684	"	1	
Tr115, 116, 117, 118, 119, 120, 121, 122, 123	2SC828	"	2		Tr231	2SA564	"	1	
Tr124, 125	2SC1684	"	9		Tr232	2SC1317	"	1	
Tr126	2SC1327MST	"	2		Tr233, 234, 235, 236, 237				
Tr127	2SC1684	"	1		Tr238, 239	2SC828	"	5	
Tr128	2SC828	"	1		Tr240	2SC1684	"	2	
Tr129	2SC1317	"	1		Tr241	2SC1383	"	1	
	2SA564	"	1		Tr501	2SA683	"	1	
		"	1			2SC828	"	1	

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
Tr502, 503	2SC1407	Transistor	2		Tr717, 718, 719, 720, 721, 722		Transistor	6	
Tr504	2SC828	"	1		Tr723, 724, 725, 726, 727, 728	2SB512			
Tr505, 506, 507					Tr729, 730, 731, 732, 733, 734	2SC1328	"	6	
Tr508, 509	2SC1407	"	3			2SA683	"	6	
Tr510	2SD389	"	2		Tr735, 736, 737, 738, 739, 740, 741, 742				
Tr511	2SC828	"	1			2SD389	"	8	
Tr512	2SC1383	"	1		Tr743, 744, 745, 746				
Tr513, 514	2SC828	"	1		Tr747, 748, 749, 750	2SA564	"	4	
Tr515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527	2SC1383	"	2			2SC828	"	4	
					Tr751, 752, 753, 754				
Tr601	2SC828	"	13			2SA564	"	4	
	2SD334	"	1		Tr791, 792, 801, 802, 803, 804, 805, 806, 807, 808				
Tr602	2SC1383	"	1			2SC828	"	10	
Tr603	2SC1684	"	1		Tr809, 810	2SC1317	"	2	
Tr604	2SC1846	"	1		Tr811, 812	2SA564	"	2	
Tr605	2SD334	"	1		Tr813, 814, 815, 816, 817, 818				
Tr606	2SC1407	"	1			2SC828	"	6	
Tr607	2SC1317	"	1		Tr819, 820	2SA564	"	2	
Tr608	2SB512	"	1		Tr821, 822, 823, 824				
Tr609	2SC828	"	1			2SC828	"	4	
Tr651	2SC328AT	"	1		Tr825, 826, 827, 828, 829, 830, 831, 832				
Tr652	2SC1848	"	1			2SA564	"	8	
					Tr881	2SC1317	"	1	
Tr653	2SC1384	"	1		Tr884	2SA564	"	1	
Tr654	2SC828AT	"	1		Tr885	2SC828	"	1	
Tr655	2SC1848	"	1		Tr901	2SC1327	"	1	
Tr656	2SC1384	"	1		Tr902, 926, 927				
Tr701, 702, 703, 704						2SC828	"	3	
	2SA564	"	4		Tr928	2SC1383	"	1	
Tr705, 706, 707, 708, 709, 710		"	6		Tr929	2SC828	"	1	
	2SA722	"							
Tr711, 712, 713, 714, 715, 716		"	6						
	2SC1383	"							

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
Tf941	2SA564	Transistor	1		D19	LN55	LED	1	
Tf942	2SC1317	"	1		D101, 102	MA150	Diode	2	
Tf951, 952, 953, 954, 955					D103, 104, 105, 106				
	2SC828	"	5		MA150		"	4	
Tf956	2SA564	"	1		OA90M		"	2	
Tf966, 967, 968					D107, 108	MA150	"	2	
	2SA885	"	3		D109, 110	MA150	"	2	
Tf969, 970, 971					D201, 202	MA150	"	2	
	2SC1846	"	3		D207, 208	OA90M	"	2	
Tf972, 973	2SC828	"	2		D501, 502, 503				
Tf974	2SA564	"	1		QVDM8513ARM		"	3	
Tf975, 976, 977, 978, 979					D504	MA1056	"	1	
	2SC828	"	5		D511	MA1150	"	1	
		INTEGRATED CIRCUITS			D601	RVD10DC2	Silicon Rectifier	1	RD SUPPLY
IC1	AN6251	Integrated Circuit	1		D602, 603	SR3AM2N	"	2	
IC2	M53204P	"	1		D604	RVD10DC2	"	1	RD SUPPLY
IC3, 4	M53200P	"	2		D605	MA1062	Diode	1	
IC5	M53203P	"	1		D606	MA1150	"	1	
IC6, 7	M53202P	"	2		D607	MA1062	"	1	
IC8	M53203P	"	1		D608	SM102	Silicon Rectifier	1	
IC911	AN660	"	1		D609	MA1062	Diode	1	
IC941	M58432P	"	1		D610	SM102	Silicon Rectifier	1	
IC966	AN640	"	1		D611	MA150	Diode	1	
		DIODES & RECTIFIERS			D651, 652	OA90M	"	2	
D1, 2, 3, 4, 5, 6	OA90M	Diode	6		D701, 702, 703, 704, 705, 706, 707, 708, 801, 802, 803, 804, 805, 806, 807, 808			16	
D7	MA150	"	1		MA150LF		"		
D8	SM102	"	1		D881, 882	OA90M	"	2	
D9	MA150	"	1		D926	MA1062	"	1	
D10, 11, 12, 13	OA90M	"	4		D941	MA1056	"	1	
D14, 15	MA150	"	2		D951, 952, 966, 967, 968, 969, 970		"	7	
D16	OA90M	"	1		MA150		"		
D17, 18	MA150	"	2		D1000	LN21	LED	1	

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
TRANSFORMERS				
T101, 201	QLT2D10A	Headphone Transformer	2	
T601	QLP2BFA	Power Transformer	1	
COILS				
L101	QLH2020	Peaking Coil	1	
L102, 103	QLH2019	Bias Trap Coil	2	
L201	QLH2020	Peaking Coil	1	
L202, 203	QLH2019	Bias Trap Coil	2	
L501	QLB0182	Oscillator Coil	1	
L502	QLB0181	High Frequency Coil	1	
L503	QLB0182	Oscillator Coil	1	
L504	QLB0181	High Frequency Coil	1	
L505	QLB0182	Oscillator Coil	1	
L506	QLB0181	High Frequency Coil	1	
L507	QLB0182	Oscillator Coil	1	
L508, 509	QLQX6814Y	Erase Dummy Coil	2	
SWITCHES				
S1	QSW2214	Power ON/OFF Switch	1	
S2	Refer to VR926	Pitch Control Switch	(1)	
S3	QSR6301	Speed Select Switch	1	
S4, 5	QST4211	Tape/Source Select Switch	2	
S6	QST4306	Equalizer Select Switch	1	
S7, 8	QST4208	Record Mode Switch	2	
S9	QST2302	Bias Select Switch	1	
S10	QSW2209	Meter Range Select Switch	1	
S11	QSW2209	MIC Attenuator Switch	1	
S12	QSW2208	Timer Start Switch	1	
S13, 14, 15, 16, 17, 18				
S19, 20	EQQPAR11K	Control Key Switch	6	
	QSM0068	Micro Switch	2	
RELAYS				
S23	QSS4212	Slide Switch	1	
S24	QSR2301	Auto Reverse Select Switch	1	
S25	EQQPAR11K	Control Key Switch	1	
S26	QSR1407	AC Voltage Select Switch	1	
RL1	QSK0134	Lead Relay	1	
RL101, 201	QSK0423	Relay	2	
FUSES				
F11, 12, 15, 16, 17	XBAQ125028	Fuse (1.25AT)	5	
F13, 14	XBAQ400032N	" (4AT)	2	
F901	XBAQ080030	" (800mAT)	1	
ELECTRICAL PARTS				
E1	QWY4011	Playback Head	2	
E2	QWY4014	Erase/Recording Head (Forward)	1	
E3	QWY4015	Erase/Recording Head (Reverse)	1	
E4	QSL9009RNM	Level Meter	2	
Main Amplifier Section				
E5	QMA3188	Heat Sink	1	
E6	QMA2926	Back Side Angle	1	
E7	QMA2932	Side Angle (Left, Right)	2	
E8	QMA2944	MIC and Meter Amplifier Holding Angle	1	
E9	QMA2938	MIC and Meter Amplifier Sub Holding Angle	1	
E10	QMA3189	P.C.B. Holding Angle	3	
E11	QNQ1039	Nut for VR	3	
E12	QNQ1070	Nut for MIC and Holding Angle	3	
E13	QMA3147	Switch Holding Angle	1	
E14	QEJ5001SM	LINE IN/OUT Jack Board Assembly	1	
E15	QMA3192	Switch Angle	1	
Capstan Motor Control P.C.B. Section				

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks		Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks	
G11	XSN4+8S	Screw	4			G43	XTN3+8B	Tapping Screw	2		
G12	QGC1067	Bottom Cover	1			G44	QXB0494	Push Button (C) Assembly	1		
G13	QMH2005	Foot Holder	2			G45	QBC1231	Spring	2		
G14	QKJ0178	Foot for Bottom Side	4			G46	QXB0493	Push Button (B) Assembly	1		
G15	XTN3+12B	Tapping Screw	4			G47	QYT0451	Pitch Control Knob	1		
G16	XUC4FT	Stop Ring	2			G48	QYT0452	Knob Assembly	2		
G17	QMG0033	Tape Guide-1	2			G49	QYP0688	Operation Panel Assembly	1		
G18	XLCQ0001	Tension Roller	2			G50	QYP0683	Panel (B)	1		
G19	QMG0034	Tape Guide-2	2								
G20	QMC0074	Sleeve	2			G51	XUB16FP	C Ring	2		
						G52	QKJ0167	Spacer	4		
G21	QBG1559	Stopper Rubber	2			G53	QBP1712	Plate Spring	2		
G22	QMC0054	Spacer	2			G54	QYK0092	Function Panel Cover	1		
G23	XVE3C8FZS	Hexagon Screw	4			G55	XVE4C30FZS	Hexagon Screw	4		
G24	QH1247	Step Screw	2			G56	QYT0407	Volume Knob (D) Assembly	2		
G25	QBC1278	Tape Guide Spring	2			G57	QBJ3299	Washer	3		
G26	QMG0046	Tape Guide-3	2			G58	QYT0406	Volume Knob (C) Assembly	3		
G27	QMG0045	Tape Guide-4	2			G59	QYT0413	Master Knob Assembly	1		
G28	QMG0031	Tape Guide-5	2			G60	QYT0449	Lever Knob (L) Assembly	2		
G29	QMS2430	Reversing Roller Shaft	1								
G30	XXE3D10FZS	Screw	1			G61	QYT0450	Lever Knob Assembly	4		
						G62	QBJ1459	Spacer	1		
						G63	QYT0412	Knob (L) Assembly	1		
								ACCESSORIES			
G31	QXP0544	Pressure Roller Assembly	2			A1	RP023A	Connection Cord	2		
G32	QBC1202	Spring	1			A2	QYQ0271	Reel Holder	2		
G34	QBW2016	Washer	2			A3	QYC0183	Dust Cover Assembly	1		
G35	QGK2731	Pressure Roller Ornament	2			A4	QYQ0274	Reel Table Spacer	1		
G36	QXP0559	Reversing Roller Assembly	1			A5	QFX0013	Head Cleaner	1		
G37	XUC7FT	Stop Ring	1			A6	QQT2221	Instruction Book	1		
G38	QBP1714	Plate Spring	1								
G39	QDP1701	Roller	1								
G40	QBF1254	Felt	1								
G41	QGK2643	Roller Ornament	1								
G42	QXB0492	Push Button Assembly	2								

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
P1	QPN3646	PACKINGS Inner Packing	1	
P2	QPA0238	Cushion-A	1	
P3	QPA0239	Cushion-B	1	
P4	QPA0240	Cushion-C	1	
P5	QPA0241	Cushion-D	1	
P6	QPA0242	Cushion-E	1	
P7	XZB50X58XA05	Poly Sheet for Main Unit	1	